AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
	1		3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0003	9 Sep 2002		

6. ISSUED BY CODE

US ARMY ENGINEER DISTRICT, FORT WORTH
ATTN: CESWF-CT (RM 2A19)
PO BOX 17300
FORT WORTH, TX 76102-0300

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

CODE FACILITY CODE

(X)

☒ 9A. AMENDMENT OF SOLICIATION NO.: DACA63-02-R-0017

9B. DATED *(SEE ITEM 11)*: 26 JUNE 2002

☐ 10A. MODIFICATION OF CONTRACT/ORDER NO.

10B. DATED *(SEE ITEM 11)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a)By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (*Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

The Solicitation for IDIQ, DESIGN-BUILD REPLACE FAMILY HOUSING, DYESS AIR FORCE BASE, ABILENE, TEXAS, is amended as follows:

See Continuation Sheet (or Sheets)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		*(Signature of Contracting Officer)*	

Item 14. Continued.

CHANGES TO STANDARD FORM 1442

1. SF 1442, Item 13.A. – In the second line, change the proposal receipt date from "2 October 2002" to **"16 October 2002".**

CHANGES TO TABLE OF CONTENTS

2. Table of Contents. – Replace the Table of Contents with the accompanying new Table of Contents, bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017."

CHANGES TO WAGE RATES

3. Wage Rates.- Replace wage rate pages 00710-1 through 00710-14 with the attached new wage rates, each page bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017."

CHANGES TO BIDDING REQUIREMENTS, PROJECT REQUIREMENTS, AND SPECIFICATIONS

4. New Sections. – Add the following new specification section:

02770A CONCRETE SIDEWALKS AND CURBS AND GUTTERS**

**A Microsoft Word version of this section is included with the amendment files.

5. Replacement Sections. - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017:"

00110 PROPOSAL SUBMISSION AND EVALUATION
01001 DESIGN AND CONSTRUCTION SCHEDULE
01012 SUBMITTALS DURING DESIGN

6. Section 01000, STATEMENT OF WORK (TASK ORDER NO. 1). - Replace the following Parts of this Section with the accompanying new Parts of the same number and title bearing the notation "ACCOMPANYING AMENDMENT # 0003 TO SOLICITATION NO. DACA63-02-R-0017:"

PART 1 - DESIGN AND CONSTRUCTION OBJECTIVES
PART 2 - CRITERIA REFERENCES
PART 4 - SITE
PART 6 - GRADING, PAVING, AND EROSION
PART 8 - SITE UTILITIES
PART 9 - HOUSING UNIT DESIGN/CONSTRUCTION
PART 10 - HOUSING UNIT STRUCTURAL DESIGN
PART 11 - UNIT DESIGN - PLUMBING
PART 12 - MAJOR APPLIANCES
PART 14 - UNIT DESIGN - ELECTRICAL

7. Section 13284. – Replace Section 13284N REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs) with the accompanying new Section 13284 REMOVAL, RECYCLING AND DISPOSAL OF REGULATED MATERIALS bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017." A Microsoft Word version of this section is included with the amendment files.

CHANGES TO THE APPENDICES

8. Appendix No. 1. – Replace Page 4 of APPENDIX NO. 1 PRELIMINARY GEOTECHNICAL REPORT with the attached new page 4 bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017."

9. New Appendices. - Add the following new Appendices, each bearing the notation "ACCOMPANYING AMENDMENT NO. 0003 TO SOLICITATION NO. DACA63-02-R-0017:"

APPENDIX NO. 17 RAINFALL INTENSITY DURATION FREQUENCY CURVES
APPENDIX NO. 18 EXISTING SANITARY SEWER PLANS AND PROFILES FAMILY HOUSING AREA: SOUTH
APPENDIX NO. 19 EXISTING SANITARY SEWER PLANS AND PROFILES FAMILY HOUSING AREA: NORTH

The existing sanitary sewer plan and profile files for the South and North Areas are located in the amendment's folders "Appendix 18" (.tif format) and "Appendix 19" (.dwg format). They can not be viewed using the Contract Viewer.

END OF AMENDMENT

00001

PROJECT TABLE OF CONTENTS

BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

DIVISION 0 - BIDDING REQUIREMENTS AND CONTRACT FORMS

PROJECT REQUIREMENTS AND SPECIFICATIONS

DIVISION 01 - GENERAL REQUIREMENTS

DIVISION 02 - SITE WORK (MANDATORY SECTIONS)

-- End of Project Table of Contents --

SECTION 00110
PROPOSAL SUBMISSION AND EVALUATION
(AMENDMENT NO. 0002 and 0003)

INDEX

ATTACHMENTS:

PERFORMANCE SUMMARY SHEETS (CONSTRUCTION)
PERFORMANCE SUMMARY SHEETS (DESIGN)
NET AREA CALCULATION WORKSHEETS
CONSTRUCTION MATERIALS, PRODUCTS, EQUIPMENT AND SYSTEMS

SAMPLE FORM: CONSTRUCTION MATERIALS, PRODUCTS, EQUIPMENT, AND SYSTEMS

SECTION 00110
PROPOSAL SUBMISSION AND EVALUATION

1 PROPOSAL SUBMISSION

See also Section 00100 INSTRUCTIONS TO OFFERORS, FAR Clause 52.215-1, INSTRUCTIONS TO OFFERORS—COMPETITIVE ACQUISITION.

1.1 WHERE TO SUBMIT

Offerors shall submit their proposal packages to the Fort Worth District at the address shown in Block 8 of Standard Form 1442.

1.2 SUBMISSION DEADLINE

1.2.1 PHASE 1 SUBMISSION DEADLINE

Submit Phase I of the Proposal no later than the date and time indicated in Item 13.A of the Solicitation, Offer and Award form (Standard Form 1442) found in Section 00010, SOLICITATION, OFFER, AND AWARD.

1.2.2 PHASE 2 SUBMISSION DEADLINE

Submission deadlines and procedures will be included with the request to submit Phase 2 proposals. Proposals from Offerors who were not requested to submit Phase 2 proposals will be returned without consideration. .

2 PROPOSAL REQUIREMENTS AND FORMAT

2.1 PROPOSAL FORMAT

All proposals shall contain the evaluation requirements stated herein. All written information and data shall be in an 8 ½" x 11" format and shall be provided in a standard 3–ring binder. Every binder shall contain: Table of Contents, List of Tables or Figures (if required), and List of Appendixes. Font size shall be not less than 10 point. Each page shall be identified with the appropriate page number centered at the bottom of the page. Sheet size of the proposal contents shall be 8 ½ by 11 inches. 11 by 17 inch sheets will be allowed for charts and tables but will be counted as 2 single-sided or 4 double-sided pages. Legibility, clarity, coherence, and the contents are important. Contents shall follow the order of the evaluation criteria and pages shall be numbered. The offeror shall not submit verbatim sections or attachments of this solicitation as part of their proposal. Only written proposals will be accepted. Oral, electronic, and facsimile proposals will not be accepted. Offers that do not meet these requirements may be subject to rejection.

a. A cover sheet identifying the offeror and the project shall be provided. The second sheet shall be a Table of Contents.

b. Table of Contents. The proposal shall contain a detailed Table of Contents. The complete Table of Contents shall be included in each binder used.

c. Materials submitted but not required by this solicitation (such as company brochures and equipment lists) shall be relegated to appendices.

Firms submitting proposals shall limit submission to data essential for evaluation of proposals so that a minimum of time and monies are expended in preparing information required by the RFP. Data submitted must reflect the designer's interpretation of criteria contained in the RFP. Unnecessarily elaborate or voluminous brochures or other presentations, beyond those sufficient to present a complete and effective response, are not desired and may be construed as an indication of the firm's lack of cost-consciousness. Elaborate artwork, expensive paper and bindings, and expensive/extensive visual and other presentation aids are unnecessary.

Technical proposals will be evaluated for conformance with the minimum RFP criteria, and for the extent to which they exceed those criteria. While the intent is to keep the pre-award design effort to a minimum, proposals must provide adequate detail for evaluators to determine how the proposals meet or exceed the RFP criteria. It must also form sufficient basis for a fair and reasonable price proposal.

Proposal clarity, organization (as stated in this solicitation) and cross-referencing are mandatory. No material (information not part of proposal) shall be incorporated by reference. A proposal that does not conform to these requirements may be considered non-responsive and the proposal returned to the Offeror.

Revisions: Proposal revisions for written portions of the proposal, including catalog cuts and specifications, shall be submitted as page replacements with revised text readily identifiable, e.g. bold face print or underlined. The source of the revision, e.g. Error, Omission, or Clarification (EOC), amendment or other Contractor-initiated change, shall also be indicated for each revision. Revised pages shall be numbered, dated, submitted in same number of copies as the original proposal submittal, and a different color page than the original.

Electronic Material: The successful offeror shall submit one copy of the proposal and all revisions, if applicable, on CD-ROM disk within 5 calendar days of the notice of contract award. Revisions shall be incorporated in the documents, marked and tabbed according to the final proposal revision. All textual material, catalog cuts, and other non-drawing material shall be in Adobe Acrobat Portable Document Format (.pdf), arranged in the same order as the hard copy version with each section or part book marked. All drawings shall be formatted in accordance with Section 1012 SUBMITTALS DURING DESIGN, Part 3 Paragraph ".CAL Files." The offeror must ensure that all textual material, if it has been scanned, has been converted to a text searchable document by using the Paper Capture tool in Adobe Acrobat.

2.2 PHASE 1 PROPOSAL FORMAT

All Phase 1 proposals shall be submitted in a **single 3-ring binder labeled as Volume I** with tabs separating the factors shown on the table below. **The original plus 9 copies of Volume I shall be submitted.** VOLUME I SHALL NOT EXCEED MORE THAN 70 SINGLE-SIDED OR 35 DOUBLE-SIDED PAGES, EXCLUSIVE OF THE COVER SHEET, TABLE OF CONTENTS, AND APPENDICES..

TABLE 1
PHASE 1 PROPOSAL FORMAT

VOLUME/TAB	EVALUATATION FACTOR/SUBFACTOR	RELATIVE IMPORTANCE
Volume I, Tab 1	Contractual Documents A. Cover Letter B. Section 00600 C. Bonding Statement	Acceptable/Unacceptable

Volume I, Tab 2	Personnel A. Design-Build Personnel B. Letters of Commitment	Approximately equal to Tab 3; Slightly more important than Tabs 4, 5, and 6; Significantly more important than Tab 7.
Volume I, Tab 3	Experience (Design & Construction) A. Design Experience B. Construction Experience	Approximately equal to Tab 2; Slightly more important than Tabs 4, 5, and 6; Significantly more important than Tab 7.
Volume I, Tab 4	Past Performance (Design & Construction) A. Past Performance B. Health & Safety Record	Slight less important than Tabs 2 and 3; Slightly more important than Tabs 5 and 6; Significantly more important than Tab 7.
Volume I, Tab 5	Program Management Plan (Overall Technical Approach)	Approximately equal to Tab 6 Slightly less important than Tabs 2, 3, and 4; Significantly more important than Tab 7.
Volume I, Tab 6	Project Management Plan	Approximately equal to Tab 5; Slightly less important than Tabs 2, 3, and 4; Significantly more important than Tab 7.
Volume I, Tab 7	Past Performance (Utilization of Small Business Concerns)	Significantly less important than Tabs 2, 3, 4, 5, and 6.

2.3 PHASE 2 PROPOSAL FORMAT

Phase 2 proposals, except for drawings, shall be submitted in **two 3-ring binders labeled as Volume II and Volume III** with tabs separating the factors shown on the table below. Drawings shall include 4 full size sets in accordance with Section 01012 SUBMITTALS DURING DESIGN and 6 sets which are half size. Each drawing shall be identified with the appropriate Sequence and Sheet Numbers in the lower right hand corner. Firms are encouraged to provide INFORMATIVE DRAWING NOTES to convey important features of their design. Drawing information shall present basic concepts, arrangements, and layouts. Arrangements, layout plans, and notes may be combined together on single sheets in order to simplify presentation, so long as clarity is maintained. Drawings are not intended to be construction detail plans. **The original plus 9 copies of Volume II and original plus 1 copy of Volume III shall be submitted.**

a. Alternate Designs: Alternate designs, which may or may not be priced as additive or deductive items shall be graphically described on separate drawings from the base proposal design. All alternate designs shall meet the minimum requirements of the solicitation.

b. Revisions: Proposal revisions for drawings shall be submitted as sheet replacements with all changes identified on the drawings with clouds and in the title block, including the source of the revision, e.g. Error, Omission, or Clarification (EOC), amendment, or other Contractor-initiated change. Revised drawings shall be numbered, dated, and submitted in the same number of copies as the original proposal submittal.

Electronic Material: See paragraph PROPOSAL FORMAT, subparagraph "Electronic Material."

TABLE 2
PHASE 2 PROPOSAL FORMAT

VOLUME/TAB	EVALUATION FACTOR/SUBFACTOR	RELATIVE IMPORTANCE
Volume II, Tab 8	Concept Design A. Building Design B. Site Design C. Supporting Data **D. (AM#2) *Deleted***	Slightly more important than than Tab 9.
Volume II, Tab 9	Project Management A. Project Schedule B. Projejct Management Plan	Slightly less important than Tab 8.
Volume II, Tab 10	Utilization of Small Business Concerns* A. Subcontracting Plan B. Mitigation Efforts 2 Utilization of Small Business Concerns D. Description of Subcontracted Supplies & Services E. Acknowledgements	Acceptable/Unacceptable
Volume III	Price A. Cover Letter B. SF 1442 & Section 00010 (Price Proposal Schedule) C. Bonding	Approximately equal to the combined importance of all other evaluation factors (Volumes I & II).

** Applies to Large Businesses Only*

2.4 REFERENCED PUBLICATIONS

Corps of Engineers' (COE) design criteria and manuals that are referenced in this solicitation, such as Technical Manuals (TM) and Instructions (TI), Military Handbooks, Engineering Regulations (ER), and Engineering Manuals (EM), can be downloaded from the Internet at the following address: http://www.hnd.usace.army.mil/techinfo or obtained from the current National Institute of Building Science's (NIB) Construction Criteria Base (CCB) CD-ROM disk. The COE SWD-AEIM and EC 1110-1-92 are on the Solicitation CD-ROM Disk. The Installation Information Infrastructure Architecture (I3A) guidelines can be downloaded from the Internet at the following address: http://arch-odisc4.army.mil/. Obtaining other referenced publications such as Federal and Military specifications, Military Standards, and industry standards (i.e., ASTM, ANSI, ACI, NFPA, building codes) will be the responsibility of each offeror. See Section 00100, paragraph "52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (AUG 1998)", for information on obtaining these publications. Offerors are warned that due to the limited time for proposal preparation and submittal, there may not be enough time for ordering and receiving any of the above references. Failure to receive requested references will not be sufficient reason for extension of the proposal submission date.

2.5 MAILING REQUIREMENT FOR SPECIAL MARKING OF PROPOSAL DATA

Envelopes or other cover for material submitted in response to this RFP shall be opaque, and must be so presented that they may easily be identified. At a minimum, the outside cover for each phase must show:

Destination of Proposal
Name and location of project as described in the RFP documents
Solicitation number
Name and address of offeror
Project phase and volume number

Submit the proposal in the format specified. Oral or telephonic proposals or modifications will not be considered.

Mail or deliver the proposal to the address listed on the Standard Form 1442, "Solicitation, Offer and Award."

3 EVALUATION OF PROPOSALS

a) All proposals and documentation, which have been properly submitted, will be evaluated. Two-phase design-build source selection procedures in FAR Subpart 36.3 will be used. Proposals will be evaluated by a team of Government staff to determine compliance with this solicitation (as a minimum) and to evaluate the quality of the proposed materials, methods, and procedures. Each of the evaluation Factors will be evaluated by the Government and a final overall rating for the proposals will be determined by consensus of the Government evaluation team. Proposals received will be evaluated on the basis of the factors stated in the solicitation to select the responsible Offeror whose proposal presents the best value and is most advantageous to the Government. Because of the number of proposals anticipated, uniformity of all proposals is essential to ensure fair and accurate evaluation. All proposals must comply with the instructions in the solicitation outlined and its supplements will be utilized.

b) The Government intends to evaluate Phase 1 proposals without discussions with Offerors. Only the most highly qualified firms (**(AM#1) no more than 4**) will be requested to submit proposals in Phase 2. The Government also reserves the right to enter into discussions if determined to be in the Government's best interests.

c) The Government reserves the right to evaluate Phase 2 proposals and make award without discussions. Therefore, the Offeror's Phase 2 proposal shall contain the Offeror's best terms from a cost or price and technical standpoint. The Government also reserves the right to enter into discussions if it is determined to be in the Government's best interest.

d) The Government will conduct evaluations in accordance with the Tradeoff Process in FAR Subpart 15.101-1. Volume I (Phase 1) and Volume II (Phase 2 excluding PRICE) will be rated using an adjectival rating with a narrative assessment. Volume III (PRICE) will not have an adjectival rating and will be evaluated separately after consensus evaluations of Volumes I and II have been completed. Proposal evaluation is an assessment of the proposal and the Offeror's ability to perform the resulting contract successfully. Proposals will be evaluated to determine ratings supported by narratives, and to identify strengths, weaknesses, and deficiencies of the proposed approach in each proposal.

e) Evaluation Definitions.

(1) Strength. A substantive aspect, attribute, or specific item in the proposal that exceeds the solicitation requirements and enhances the probability of successful contract performance.

(2) Weakness. A flaw in the proposal that increases the risk of unsuccessful contract performance. A significant weakness in the proposal is a flaw that appreciably increases the risk of successful contract performance.

(3) Deficiency. A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

(4) Clarification. Clarifications are limited exchanges between the Government and Offerors that may occur when award without discussions is contemplated. If award without discussions is anticipated, Offerors may be given the opportunity to clarify certain aspects of their proposals or to resolve minor or clerical errors.

(5) Communications. Communications are exchanges between the Government and Offerors after receipt of proposals, leading to establishment of the competitive range.

(6) Discussions. Discussions are negotiations conducted in a competitive acquisition and take place after establishment of the competitive range. Discussions are tailored to each Offeror's proposal, and shall be conducted by the Contracting Officer with each Offeror within the established competitive range.

(7) Rating. The application of a scale of words, colors, or numbers, used in conjunction with narrative, to denote the degree to which the proposal has met the standard for a non-cost factor. For purposes of this solicitation, ratings will consist of words (adjectival method) used in conjunction with narratives. Ratings will be applied at the factor (tab) and subfactor level. If at any level of indentation an Offeror's proposal is evaluated as not meeting a minimum requirement (that is, below the level of Satisfactory), this fact must be included in the rating and narrative assessment at that level and each higher level of indentation. Therefore, a Marginal or Unacceptable rating at any level must be carried to the factor (tab) level. The following ratings will be used to evaluate Volume I and Volume II:

(i.) EXCELLENT: The offeror greatly exceeds the scope of the solicitation requirements in all aspects of the particular factor or sub-factor. The offeror also provides significant advantage(s) and exceeds the solicitation requirements in performance or capability in an advantageous way and has no apparent or significant weaknesses or omissions.

(ii.) ABOVE AVERAGE: The offeror exceeds the scope of the solicitation in most aspects of the particular factor or sub-factor. The offeror provides an advantage in key areas or exceeds performance or capability requirements, but has some areas of improvement remaining.

(iii.) HIGH AVERAGE: The offeror matches the scope of the solicitation in all aspects of the particular factor or sub-factor. The offeror does include an advantage in some but not all areas of performance or capability for this factor or sub-factor. There is room for improvement in this element.

(iv.) AVERAGE: The offeror matches the scope of the solicitation in most aspects of the particular factor or sub-factor. The offeror meets the performance or capability requirements of the element but not in a way advantageous to the Government. There is room for improvement in this element.

(vi.) POOR: The offeror does not meet the minimum scope of the solicitation for the particular factor or sub-factor. The offeror does not include any advantages and does not meet the minimal performance or capability requirements for this element. The offeror contains many apparent weaknesses and requires improvement.

(vii.) UNACCEPTABLE: The offeror fails to meet the scope of the solicitation in all aspects of the factor or sub-factor or has not submitted any information to address this evaluated item. The offeror does not include any advantages in any areas of the element and does not meet the minimum performance or capability requirements of this factor or sub-factor. The proposal includes large apparent weaknesses and the proposal will require extensive modifications to come into compliance with the minimum requirements of the solicitation.

4 RELATIVE IMPORTANCE OF EVALUATION FACTORS

4.1 RELATIVE IMPORTANCE OF PHASE 1 EVALUATION FACTORS

The evaluation factors in Phase 1 and their relative importance are listed in Table 1 PHASE 1 PROPOSAL FORMAT in Paragraph 2.2 PHASE 1 PROPOSAL FORMAT. The value of the factors is listed in the RELATIVE IMPORTANCE column. The subfactors within each factor are listed in descending order of importance.

4.2 RELATIVE IMPORTANCE OF PHASE 2 EVALUATION FACTORS

The evaluation factors in Phase 2 and their relative importance are listed in Table 2 PHASE 2 PROPOSAL FORMAT in Paragraph 2.3 PHASE 2 PROPOSAL FORMAT. The value of the factors is listed in the RELATIVE IMPORTANCE column. The subfactors within each factor are listed in descending order of importance.

4.3 RELATIVE IMPORTANCE OF VOLUMES

In the overall best value analysis, the technical factors in Volume II are significantly more important than those in Volume I..When combined, the technical ratings in Volume I and II are of approximately equal importance to the price factors in Volume III.

5 SUBMITTALS & EVALUATION

The requirements specified in the solicitation are minimum requirements. A more favorable evaluation rating will be given for exceeding the minimum requirements. A low evaluation rating for any factor, or combination of different factors, may cause the proposal to be evaluated unsatisfactorily.

6 PHASE 1 SUBMITTALS & EVALUATION

6.1 TAB 1 CONTRACTUAL DOCUMENTS – SUBMITTAL REQUIREMENTS

Documents submitted under Tab 1 CONTRACTUAL DOCUMENTS will consist of the items listed below. **Do not include the bid guarantee (i.e bid bond) or the Price Proposal Schedule as these are not required until Phase II**:

a) COVER LETTER: The Offeror will submit a cover letter containing:

(1) Solicitation number.
(2) Name, address, e-mail, and telephone and facsimile numbers of the Offeror.
(3) Names, titles, e-mail, and telephone and facsimile numbers of persons authorized to negotiate on the Offeror's behalf with the Government in connection with this solicitation.
(4) Name, title, and signature of the person authorized to sign the proposal.
(5) Acknowledgement of all amendments to the solicitation (if applicable).
(6) Standard Form 1442 shall be filled out and signed by a principal of the firm authorized to bind the design-build team. Signatures(s) must be in long hand.

b) SECTION 00600 "REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS"

Offers shall submit Section 00600 completed as appropriate.

c) BONDING STATEMENT

(1) The Offeror shall submit a signed statement from its proposed surety identifying the Offeror's maximum bonding capacity under the proposed contract. The successful Offeror will be required to submit performance and payment bonds for 100% of the task order amount immediately after award of individual task orders. For information purposes, the largest task order awarded under this contract is estimated to be approximately $20.3 million although it is assumed that there will be overlapping task orders where the aggregate amount of the total work under contract may be as high as $60 million. The letter shall reflect a minimum bonding capacity of $60 million. See also Section 00700, PERFORMANCE AND PAYMENT BONDS and Section 00800, TASK ORDERS. Note: DO NOT SUBMIT ACTUAL PERFORMANCE AND PAYMENT BONDS WITH THIS PROPOSAL. This letter will not count towards the aforementioned page limitation.

(2) The Offeror shall explain how it will maintain sufficient bonding capacity with overlapping task orders occurring. It is anticipated that task orders will be issued on an annual basis. Depending on the Offeror's completion schedules that may range up to 18 months, task orders and bonding capacity between years will likely overlap. See also Section 00110, Paragraph PROGRAM MANAGEMENT PLAN.

6.2 TAB 1 CONTRACTUAL DOCUMENTS – EVALUATION

CONTRACTUAL DOCUMENTS is not part of the Source Selection Board (SSB) evaluation but rather will be used in evaluating the Offeror's responsiveness, conformance to the solicitation, and eligibility for award. Based on the information submitted, the Offeror will be either ACCEPTABLE OR UNACCEPTABLE. CONTRACTUAL DOCUMENTS will be evaluated as follows:

a) COVER LETTER

The cover letter will be used to ensure the Offeror acknowledges solicitation amendments. Otherwise, the cover letter provides information on the Offeror.

b) SECTION 00600 "REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS"

Section 00600 will be used to determine the Offeror's business classification and responsiveness based on answers to representations, certifications, and other statements included in the solicitation.

c) BONDING STATEMENT

The Offeror must be capable of obtaining in the minimum bonding capacity to be considered for award. To be considered for award, the Offeror shall identify how it will maintain sufficient bonding capacity assuming overlapping task orders.

6.3 TAB 2 PERSONNEL – SUBMITTAL REQUIREMENTS

PERSONNEL consists of two subfactors: Design-Build Personnel and Letters of Commitment. Résumés shall be submitted in the following format.

Name/Title	
Proposed Duties & Functions Proposed Designer-of-Record: [Y] [N] for design discipline [_____] (Insert design discipline in blank space)	
Firm Affiliation/Years Affiliated	
Education: Degree Year Specialization	
Active Registrations (including dates) and/or Professional/Technical Certifications/Licenses	
Experience relevant to proposed project, including the years of experience performing proposed duties & functions. For each project listed below, identify the length of time key personnel stayed on their contracts and how well they managed their portion of the referenced contracts.	
Specific Qualifications relevant to proposed project	

List of Relevant Projects: For each project listed, provide: -- Project Title -- Project Description -- Type (D-B, Construction, etc.) -- Dollar Value -- Year Completed -- Individual's project assignment to include specific roles and responsibilities, dates worked on project, and project's relevance to this solicitation. -- Identify the length of time key personnel stayed on their contracts and how well they managed their portion of the referenced contracts.	

a) DESIGN-BUILD PERSONNEL

The Offeror shall submit the résumés on lead and support design, construction, and management personnel who will work on this project. Provide summaries of the duties and responsibilities of these individuals which clearly indicate the duties and responsibilities for each of the individuals. Key personnel identified in this tab shall be Contractor's senior working-level people who will be involved in design and construction on a day-to-day basis as opposed to departmental level supervisors or executives. Key personnel shall have experience in design and construction of housing projects similar to that of this Contract. Resumes shall list projects, identified in the subfactor DESIGN EXPERIENCE (Tab 3A), that show previous working relationships among key personnel. Minimum personnel qualifications are specified in Sections 01012 SUBMITTALS DURING DESIGN, Part 1 paragraph DESIGN AND CONSTRUCTION PERSONNEL QUALIFICATIONS; 01320 PROJECT SCHEDULE; 01430 DESIGN QUALITY CONTROL; and 01451 CONTRACTOR QUALITY CONTROL. The proposal shall clearly present the credentials of each person, and shall show that each meets the requirements listed in the Contract. Resumes shall include examples of project experience and educational qualifications. If reassignment of personnel is considered possible, provide the names and resumes of the alternate professionals in each assignment. The design-build team shall consist of the following, as a minimum:

Project Manager
Lead Architect
Landscape Architect
Lead Civil Engineer
Lead Structural Engineer
Lead Mechanical Engineer
Lead Electrical Engineer
NACE Certified Corrosion Specialist
Design Quality Control Manager
Construction Quality Control Manager
Project Superintendent
Project Scheduler
Surveyor
Geologist/Geotechnical Engineer
Early Childhood Play Specialist
Industrial Hygienist

b) LETTERS OF COMMITMENT

In an appendix, provide letters of commitment for all key personnel on the Design-Build team and any proposed alternate personnel. By identifying these personnel, the offeror is making a commitment that, barring unforeseen circumstances, they are the personnel who will be assigned to the project. A letter of commitment from each firm committing specific individuals from the firm may be provided in lieu of separate letters for each individual. After contract award, substitutions for any of the key personnel or alternates shall require the Contracting Officer's approval.

6.4 TAB 2 PERSONNEL– EVALUATION

PERSONNEL contains two subfactors: Design-Build Personnel and Letters of Commitment. Design-Build Personnel is significantly more important than Letters of Commitment will be evaluated as Acceptable or Unacceptable. Personnel of primary teaming partners will be recognized and evaluated in the same manner as Personnel of the Offeror. PERSONNEL will be evaluated as follows:

a) DESIGN-BUILD PERSONNEL

Experience on similar housing projects, education, responsibilities/duties, and years of experience will be evaluated for the key construction personnel identified. Offerors with key design or construction personnel with prior experience on military housing construction projects and/or completion of design-build housing projects may receive a more favorable evaluation. Consideration will be given to sustainable design experience.

b) LETTERS OF COMMITMENT

Are letters of commitment for the duration of the Contract provided for each of the design-build team members provided?

6.5 TAB 3 EXPERIENCE (DESIGN & CONSTRUCTION) – SUBMITTAL REQUIREMENTS

EXPERIENCE (DESIGN & CONSTRUCTION) consists of two sub-factors: Design Experience and Construction Experience. List no more than 10 projects total for both subfactors. Each project example shall include:

a. Project name and location
b. Type of facility
c. Identify type of contract (design, design/build, or construction)
d. Description of the project and the area or experience the project demonstrates
e. Construction contract award amount (estimated or actual);
f. Final construction cost (if applicable);
g. Date when the project was started;
h. Original scheduled contract finish date
i. Actual finish date (if finished)
j. Overall size of facility (in square feet)
k. Construction cost (excluding design costs)
l. Duration of construction (excluding design time)
m. Problems encountered and corrective actions taken

n. Identify which proposed team members and/or firms were involved in the project; their specific roles and responsibilities on the project; and the extent of time they were involved with the project
o. Relevance of experience to the solicitation project
p. Was sustainable design used? If yes, indicate the certification level.
q. If a government contract, include the contracting agency and contracting officer's name, telephone number, fax number, and email address (if known)
r. All examples shall also contain the name, address, telephone and fax number of a representative of the customer (as well as one alternate individual affiliated with your firm) familiar with the Offeror's experience on the project that can verify the experience cited.

Joint Ventures: If offeror represents the combining of two or more companies for the purpose of this RFP, the proposal shall indicate whether the firms have experience working together in design/build ventures and for how long and how many projects. In addition, each company of this joint venture shall list their Government contract experiences.

a) DESIGN EXPERIENCE

Provide a list of projects currently underway or completed preferably within the last 5 years that best demonstrates the design experience of the design team (firms and/or individual team members) to successfully complete this facility using a design/build process. Experience beyond 5 years ago for design firms will be given less consideration than more recent experience. Projects shall indicate experience in one or more of the following categories:

1) Experience on Similar Housing Projects
   Similar Housing Projects include residential family housing of single detached (3-bedroom) and duplex (2-bedroom) units and where the housing projects have a dollar value greater than $10 million.
2) Design-Build Experience
3) Military Construction Design Experience
   Military Construction design experience is considered to be experience on those projects constructed on and for military installations but may include projects for other Federal, State, or Local Government agencies.

The Offeror must clearly identify for which experience area(s) each project example pertains (e.g., Project A may qualify and be listed for similar housing projects, design-build, and military construction while Project B may qualify and be listed only for similar housing projects; etc.).

b) CONSTRUCTION EXPERIENCE

Provide a list of projects currently underway or completed preferably within the last 5 years that best demonstrates the construction experience of the construction team (firms and/or individual team members) to successfully complete this facility using a design/build process. An offeror must make clear the extent of involvement in those projects by current key personnel and clearly describe how the older project is similar to this project, considering changes in technology, materials, equipment, codes, etc. Projects shall indicate experience in one or more of the following categories:

1) Experience on Similar Housing Projects
   Similar Housing Projects include residential family housing of single detached (3-bedroom) and duplex (2-bedroom) units and where the housing projects have a dollar value greater than $10 million.
2) Design-Build Experience
3) Military Construction Design Experience

Military Construction experience is considered to be experience on those projects constructed on and for military installations but may include projects for other Federal, State, or Local Government agencies.

4) Experience at Dyess AFB or in Abilene, Texas.

The Offeror must clearly identify for which experience area(s) each project example pertains (e.g., Project A may qualify and be listed for similar housing projects, design-build, military construction, and experience at Dyess AFB or Abilene, Texas while Project B may qualify and be listed only for similar housing projects; etc.).

6.6 TAB 3 EXPERIENCE (DESIGN & CONSTRUCTION) – EVALUATION

EXPERIENCE (DESIGN & CONSTRUCTION) contains two subfactors that approximately equal: Design Experience and Construction Experience. Experience of primary teaming partners will be recognized and evaluated in the same manner as Experience of the Offeror. EXPERIENCE (DESIGN & CONSTRUCTION) will be evaluated as follows:

a) DESIGN EXPERIENCE

The offeror will be evaluated based on the recent experiences of the design team (firms and/or individual team members). The amount of consideration will depend upon the extent of the offeror's experience, similarity between previous project scopes of work and this project, and the relevance of the offeror's experience to this project. Experience in the following areas will be considered, in descending order of importance: Offerors may be evaluated more favorably where there is experience in more than one of the areas.

(1) Similar Housing Projects: A proposal offering Similar Housing Project experience through project examples under the prescribed parameters of this solicitation may be evaluated more favorably than those which demonstrate the experience in the other areas. Offerors may be evaluated more favorably based on: (i) a larger number of similar projects; (ii) more recent projects; or (iii) projects with a dollar value over $10 million.

(2) Design-Build: No previous design-build team experience is necessary to qualify for award of this project; however, consideration will be given for recent, successful D-B team experience between the construction firm and design firms(s).

(3) Military Construction Design: Familiarity with federal regulations and administration of Corps of Engineers or other federal contracts are considered relevant. Corps of Engineer projects are considered more relevant than those of other Federal agencies, state, or local experience.

(4) Previous Experience As A Team. Extent to which members of the proposed team have worked together on previous projects as a team will be considered. Design team experience, construction team experience, and design-construction team experience are all considered relevant.

(5) Sustainable design. Consideration will be given to the use of sustainable design.

b) CONSTRUCTION EXPERIENCE

The offeror will be evaluated based on the recent experiences of the construction team (firms and/or individual team members). The amount of consideration will depend upon the extent of the offeror's experience, similarity between previous project scopes of work and this project, and the relevance of the offeror's experience to this project. Experience in the following areas will be considered, in descending order of importance. Offerors may be evaluated more favorably where there is experience in more than one of the areas.

(6) Similar Housing Projects: A proposal offering Similar Housing Project experience through project examples under the prescribed parameters of this solicitation may be evaluated more favorably than those which demonstrate the experience in the other areas. Offerors may be evaluated more favorably based on: (i) a larger number of similar projects; (ii) more recent projects; or (iii) projects with a dollar value over $10 million.

(7) Design-Build: No previous design-build team experience is necessary to qualify for award of this project; however, consideration will be given for recent, successful D-B team experience between the construction firm and design firms(s).

(8) Military Construction (MILCON) Design: Familiarity with federal regulations and administration of Corps of Engineers or other federal contracts are considered relevant. Corps of Engineer projects are considered more relevant than those of other Federal agencies, state, or local experience.

(9) Previous experience as a team. Extent to which members of the proposed team have worked together on previous projects as a team will be considered. Design team experience, construction team experience, and design-construction team experience are all considered relevant.

(10) Experience at Dyess AFB or in Abilene, Texas: Familiarity with Dyess AFB installation requirements and the local vicinity is considered relevant.

6.7 TAB 4 PAST PERFORMANCE (DESIGN & CONSTRUCTION) – SUBMITTAL REQUIREMENTS

PAST PERFORMANCE (DESIGN & CONSTRUCTION) consists of two subfactors: Past Performance and Health and Safety Record. Past performance of the offeror, subcontractors, consultants, and key individuals will be considered in evaluating past performance, utilizing information provided in the proposal and other information available to the Contracting Officer, including but not limited to the following: The following will be considered in descending order of importance:

a) PAST PERFORMANCE

Submit past performance information ratings, prepared by the clients, on projects identified in Tab 3 EXPERIENCE (DESIGN & CONSTRUCTION) – SUBMITTAL REQUIREMENTS, awards, letters, evaluations, or other forms of recognition that demonstrate your performance capabilities and customer satisfaction. If provided, this additional past performance information shall be relegated to an appendix and will not count towards the aforementioned page limitation:

1) For each design and/or construction firm on the project team, provide the firm's name, address, and DUNS number.

2) ACASS (A-E Contract Administration Support System) and CCASS (Construction Contract Administration Support System) Evaluations. ACASS evaluations will be utilized in evaluating the past performance on Corps of Engineers contracts for Architect-Engineering firms on the offeror's Design-Build team. CCASS evaluations will be utilized to evaluate past performance on Corps of Engineers contracts for construction firms on the offeror's Design-Build team.
3) Federal Agency Performance Evaluations
4) Contractor Performance Report From State and local governments and private sector clients. Submitted Contractor Performance Reports may be verified telephonically. References not supported by a Contractor Performance Report may be contacted in writing or telephonically to assess customer satisfaction.
5) Awards, letters, and other forms of recognition
6) All other information available to the Government

Provide the Architect-Engineer Contract Administration Support System (ACASS) or Construction Contractor Appraisal Support System (CCASS) Performance Evaluations you received on DOD Government design projects. Copies of records contained in the Corps of Engineers ACASS and CCASS Database may be requested by fax on company letterhead at the following telefax number: (503) 808-4596.

For Non-Corps References: For each non-Corps project listed under Tab 3 EXPERIENCE (DESIGN & CONSTRUCTION), offerors should send Client Authorization Letters and Contractor Performance Report (attached to the end of this Section) to each reference listed in the proposal to assist in the timely processing of the past performance evaluation. In an appendix, provide a copy of issued letters with the offeror's proposal.

New Companies: For new companies entering the marketplace (without relevant company experience) the quality of the past performance of their key management personnel of the Primary Design Construction Team and and consultants will indicate the risk of good performance and become the basis of the past performance evaluation. Identifying how long key personnel stayed on their contracts and how well they managed their portion of the referenced contracts will be of great importance in the evaluation process.

b) HEALTH AND SAFETY RECORD

The Offeror shall submit OSHA Form 300 **(AM#1)** **containing the Offeror's health and safety records for the previous five years**. This form, in Microsoft Excel format, can be downloaded from the Internet at the address: **http://www.ehso.com/OSHA_Forms.htm**.

(AM#1) Using the data and the following formula, calculate the Incident Rate for each of the five years:

Number of Lost Time Accidents for the year x 200,000
---------- = Incident Rate for the Year
Man-hours Worked that Year

Submit these incident rates with the OSHA Form 300 data.

NOTE: If the Offeror already has copies of the old OSHA Form 200, the data may be submitted on this form in lieu of on OSHA Form 300.

6.8 TAB 4 PAST PERFORMANCE (DESIGN & CONSTRUCTION) – EVALUATION

PAST PERFORMANCE (DESIGN & CONSTRUCTION) contains two subfactors that are listed in descending order of importance: Past Performance and Health And Safety Record. Past Performance of primary teaming partners will be recognized and evaluated in the same manner as Past Performance of the Offeror. PAST PERFORMANCE (DESIGN & CONSTRUCTION) will be evaluated as follows:

a) PAST PERFORMANCE

Past Performance ratings received on prior Government work and projects completed for Private Industry will be evaluated. Higher evaluation ratings may be awarded for Exceptional evaluations. In descending order, lower ratings may be given to evaluations of Below Average, Poor, and Unacceptable. If an Offeror has no past performance evaluations within the ACASS or CCASS database or Performance Summary sheets included in the proposal, a neutral rating will be awarded. The Government reserves the right to contact the evaluator on previous Government or private sector work to verify the Offeror's experience. The Government also reserves the right, but is not obligated, to query any Government agencies, databases, and publications for information such as performance evaluations, debarment, terminations, and litigation for evaluation purposes. The following will be considered in descending order of precedence:

1) For each design and/or construction firm on the project team, provide the firm's name, address, and DUNS number.
2) ACASS (A-E Contract Administration Support System) and CCASS (Construction Contract Administration Support System) Evaluations. ACASS evaluations will be utilized in evaluating the past performance on Corps of Engineers contracts for Architect-Engineering firms on the offeror's Design-Build team. CCASS evaluations will be utilized to evaluate past performance on Corps of Engineers contracts for construction firms on the offeror's Design-Build team.
3) Federal Agency Performance Evaluations
4) Contractor Performance Report From State and local governments and private sector clients. Submitted Contractor Performance Reports may be verified telephonically. References not supported by a Contractor Performance Report may be contacted in writing or telephonically to assess customer satisfaction.
5) Awards, letters, and other forms of recognition
6) All other information available to the Government

b) HEALTH AND SAFETY RECORD

Offerors who have minimal health and safety incident rates will receive a more favorable evaluation. **(AM#1)** **The five incident rates provided will be averaged. Offerors who have average incident rates averaging below 0.84 will be rated average or better. Offerors who have average incident rates averaging between 0.84 and 1.95 will be rated as Poor. Offerors who have average incident rates averaging over 1.95 will be rated unacceptable.**

c) NO RELEVANT PAST PERFORMANCE INFORMATION

In accordance with FAR 15.305, a neutral rating will be assigned to an Offeror who does not have a record of relevant past performance or for whom information on past performance is not available, such as new companies entering the marketplace (without relevant company experience). However, an Offeror may submit and be evaluated on past performance information regarding predecessor companies, key personnel who have relevant experience, consultants, or subcontractors who will perform major or critical aspects of the requirement when such information is relevant to the instant acquisition. Identifying how long key personnel stayed on their contracts and

how well they managed their portion of the referenced contracts will be of great importance in the evaluation process.

d) ADVERSE PAST PERFORMANCE INFORMATION

In accordance with FAR 15.306, the Government may initiate exchanges with an Offeror to clarify adverse past performance information when the Offeror has not previously had an opportunity to comment. Since discussions are not intended to occur in Phase 1, the Government may accomplish exchanges through clarifications prior to selecting the most highly qualified firms to submit proposals in Phase 2.

6.9 TAB 5 PROGRAM MANAGEMENT PLAN – SUBMITTAL REQUIREMENTS

The Offeror shall provide a comprehensive Program Management Plan detailing the overall management approach to this entire Housing Program (FY 03 – FY 13). The Program Management Plan shall clearly indicate how the Offeror has the ability to deliver quality housing units under the following constraints:

- ?? 12 to 18 Month Construction Schedule.
- ?? Task Orders issued annually.
- ?? Approximately 85 housing units to be constructed per task order.
- ?? Limitations of available local labor forces.

6.10 TAB 5 PROGRAM MANAGEMENT PLAN – EVALUATION

The Program Management Plan will be evaluated for inclusion of all tasks identified in the Program Management Plan submittal paragraph above. The requirements specified in the solicitation are considered to be minimum requirements. A more favorable evaluation rating may be given for exceeding the minimum requirements. The quality of the Offeror's plan to deliver a quality product under the constraints listed will be evaluated. Higher evaluation ratings can be achieved with a thoroughly explained Program Management Plan that illustrated that the Offeror has a firm understanding of the scope and complexity of this housing program.

6.11 TAB 6 PROJECT MANAGEMENT – SUBMITTAL REQUIREMENTS

a) PROJECT MANAGEMENT PLAN (PjMP)

The Offeror shall provide a comprehensive Project Management Plan (PjMP) developed specifically for implementation of the task orders for this Contract. The PjMP shall discuss the the management approach used for design, site clearing and demolition, construction, turn-over of all housing units of the task order within the proposed schedule, and demolition of existing family housing in preparation for the next task order. The PjMP shall discuss phased turn-over of the finished housing units, when required by task order, and how it will be achieved within the proposed schedule. The information in the PjMP shall make it clear that the Offeror has the ability to deliver a quality product and effectively manage the designers, consultants, and subcontractors on the team, as well as the ability to coordinate all work throughout the design and construction phases. The PjMP shall include an explanation of the total project team management approach for both the design team and the construction team. It shall include: management of firms included within the design team and construction team, specific quality control procedures used (including Quality Control procedures to be used to limit re-submittals, design errors, and poor coordination between the design firm and design consultant), schedule development, and methods to be utilized to

adhere to the schedule. Address the acquisition of environmental permits in a timely fashion; safety; preparation and submission of record (i.e as-built) documents, and contract closeout. Discuss how the design team will support the Offeror during construction and an organizational chart showing the inter-relationship of management and various team components, including the Corps of Engineers and the Air Force. Address the relationship between designer and construction contractor and clearly indicate an understanding of the design-build process. In addition:

(1) Identify the items of work to be self-performed by offeror and the percentage of the overall contract value that this work represents.

(2) Describe the team's computer-aided drafting and design (CADD) capabilities. Identify the CADD software to be used in the design of this project; if all disciplines are not using the same CADD software, identify the software that each discipline is using. Discuss compatibility with the Government's target CADD and compliance with the Tri-Service A/E/C/ CADD standards. Explain how compatibility will be achieved if the design, or portion of the design, is prepared using a CADD system other than the Government's target CADD system. (Refer to Section 01012 SUBMITTALS DURING DESIGN for information on the Government's target CADD system and compatibility requirements.)

6.12 TAB 6 PROJECT MANAGEMENT – EVALUATION

PROJECT MANAGEMENT will be evaluated as follows:

a) PROJECT MANAGEMENT PLAN (PjMP)

Project Management Plans will be evaluated for inclusion of all tasks identified in the Project Management Plan submittal paragraph above. The ability of the Offeror’s plan to deliver a quality product and effectively manage the construction team and coordinate all work throughout the design and construction phase of this project will be evaluated. Higher evaluation ratings can be achieved with a thoroughly explained Project Management Plan suitable for the scope and complexity of this housing project, and which addresses each of the following:

?? Management Approach
?? Sub-Contractor Management
?? Quality Control Procedures
?? Schedule development and adherence (Phased Turn-Over)
?? Organization Chart
?? Acquisition of Environmental Permits
?? Safety
?? Preparation and submission of record (i.e. as-built) documents
?? Contract closeout
?? What is the work that will be self-performed by the offeror and what is the percentage of the overall contract value that this work represents? This percentage will be compared to the minimum specified in Contract Clause 52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR.
?? The team's computer-aided drafting and design (CADD) capabilities:
- Is the CADD software to be used in the design of this project identified?
- If all disciplines are not using the same CADD software, is the software that each discipline is using identified and which discipline will be responsible for the final set?
- Is this software compatible with the Government's target CADD and in compliance with the Tri-Service A/E/C/ CADD standards?

- How will compatibility be achieved if the design, or portion of the design, is prepared using a CADD system other than the Government's target CADD system?

6.13 TAB 7 PAST PERFORMANCE (UTILIZATION OF SMALL BUSINESS CONCERNS) – SUBMITTAL REQUIREMENTS

a) SMALL BUSINESS

PAST PERFORMANCE (UTILIZATION OF SMALL BUSINESS CONCERNS) is **only applicable to large business concerns**. Small business concerns only need to state their business size classification based on the NAICS code and size standard in Section 00100 of the solicitation.

b) LARGE BUSINESS

PAST PERFORMANCE (UTILIZATION OF SMALL BUSINESS CONCERNS) will be evaluated to determine the Offeror's past performance in meeting small business goals for the following small business classifications: Small Business (SB), Small Disadvantaged Business (SDB), Women Owned Small Business (WOSB), HUBZone, and Severely Disabled Veteran Owned Small Business (SDVOSB). The Offeror shall submit data on its overall past performance in meeting small business goals on all Government contracts of a similar nature within the last 5 years containing FAR Clause 52.219-8, "Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns" and FAR Clause 52.219-9, "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan." The data to be provided shall account for each of the above small business classifications and include:

(1) Client/Customer.
(2) Contract/Identification Number.
(3) Project Description.
(4) Contract Amount.
(5) Reference or Point of Contract (to include address and telephone number).
(6) Official Documentation (Government contracts only) that may include:
  (i.) Evidence of compliance checks by Government agencies such as Small Business Administration, Defense Contract Audit Agency, or U.S. Army Corps of Engineers.
  (ii.) Standard Form 294 and Standard Form 295.
(7) Other Relevant Documentation that may include citations, awards, letters of accommodation, etc. that demonstrate successful past performance in utilization of small business concerns.

6.14 TAB 7 PAST PERFORMANCE (UTILIZATION OF SMALL BUSINESS CONCERNS) – EVALUATION

a) SMALL BUSINESS

In accordance with FAR 15.305, small business concerns will receive the highest evaluating rating under Tab 7 PAST PERFORMANCE (UTILIZATION OF SMALL BUSINESS CONCERNS).

b) LARGE BUSINESS

Large Business Offerors will be formally evaluated to determine the Offeror's past performance in establishing and achieving realistic yet challenging goals on recent Government contracts of a similar nature. Offerors' who have recently established and achieved higher goals will be evaluated more favorably.

c) NO RELEVANT PAST PERFORMANCE INFORMATION

In accordance with FAR 15.305, a neutral rating will be assigned to an Offeror who does not have a record of relevant past performance or for whom information on past performance is not available, such as new companies entering the marketplace (without relevant company experience). However, an Offeror may submit and be evaluated on past performance information regarding predecessor companies, key personnel who have relevant experience, consultants, or subcontractors who will perform major or critical aspects of the requirement when such information is relevant to the instant acquisition.

d) ADVERSE PAST PERFORMANCE INFORMATION

In accordance with FAR 15.306, the Government may initiate exchanges with an Offeror to clarify adverse past performance information when the Offeror has not previously had an opportunity to comment. Since discussions will not occur in Phase 1, the Government may accomplish these exchanges through clarifications prior to selecting the most highly qualified firms to submit proposals in Phase 2.

7 PHASE 2 SUBMITTALS & EVALUATION

7.1 TAB 8 CONCEPT DESIGN – SUBMITTAL REQUIREMENTS

CONCEPT DESIGN consists of **(AM#2) three subfactors: Building Design, Site Design and Supporting Data.**

a) BUILDING DESIGN

(1) Design Narrative. Provide a description of how the desired architectural character is achieved through the use of form, scale, and proportion. Indicate how materials are used to add pattern and definition to the design. Discuss the sensory perception and recognition of the physical elements as they are experienced sequentially in time as one approaches, enters, and moves through the order of spaces within the housing unit. Briefly discuss the functioning of activities within the housing unit spaces and the qualities of light, view, and acoustics. Discuss the material, material quality, equipment proposed, the energy efficiency of the materials and equipment, energy-saving features, the acoustical characteristics of the building envelope, selection of the locations for the ADA units, and each of the design disciplines' (architectural, civil, structural, mechanical, electrical, etc.) systems and the rational for the selected systems, such as:

a. Structural system and the rationale behind the selection of the proposed system, including identification of major structural materials and systems.
b. Plumbing system and the rationale behind the selection of the proposed fixtures and equipment.
c. Heating, Ventilation and Air Conditioning system and rationale behind the selection of the proposed system.
d. Electraical system and the rationale behind the selection of the Interior power distribution systems and the rationale behind the selection of the proposed system, fixtures, and equipment. Identify electrical characteristics of power supply (phase, voltage, KVA). Provide description of panels, protection devices and typical loading of circuits.

Identify type of wire. Discuss housing communication systems (telephone, cable TV, etc.) and the rationale behind the selection of each system.

e. Discuss maintenance and accessibility considerations in the selection and layout of the mechanical and electrical systems.

(2) Design Drawings.

(i.) Architectural Floor Plans – (Scale 1/8" = 1'-0"). Provide overall dimensions, room description, room dimensions and areas, appliances (including occupant-owned washer and dryer), plumbing fixtures and vanities, kitchen layout, door swings, typical furniture arrangements, garage features, patio, exterior bulk storage, service (trash) area, and furnace and hot water heater location. Identify types of materials and show all columns, partitions, openings, and roof overhangs.

(ii.) Exterior Elevations - (Scale 1/8" = 1'-0"). Provide drawings to present design intent, identify exterior materials, and show proposed detailing. Show all sides. Indicate door and window sizes and configurations, porches, decks, and exterior steps. Provide major horizontal and vertical dimensions.

(iii.) Typical Interior Elevations – (Scale 1/4" = 1'-0"). Kitchens and bathrooms.

(iv.) Building Section – (Scale 1/8" = 1'-0"). Provide a building section of the offeror's choice which illustrates the vertical relationship of all major building components, walls, floors, ceiling, and roofs. Identify materials and show foundations, porches, and decks as applicable. Explain how this section is either typical of all proposed family housing units or how other models may be different from the section shown.

(v.) Wall Section - (Scale 3/4" = 1'-0"). Provide a typical wall section showing foundation, wall composition, and floor and roof systems. Identify materials, finishes, thermal insulation, vapor protection, cavity and party walls, and wall fire and STC ratings.

(vi.) Finish and Equipment Schedules - Provide interior finish schedule for all rooms and door and window schedules. Include ceiling heights on the interior finish schedule. DO NOT PROVIDE COLOR BOARDS.

(vii.) **DELETED (AM#3)**

(viii.) Electrical Floor Plan – (Scale 1/8" = 1'-0"). Indicate lighting fixture locations, properly labeled to show type of fixture.. Include a fixture schedule which indicates general fixture description, number and type of lamps, type of mounting, and any special features. Indicate switch locations, convenience outlet locations, smoke detector locations, telephone outlet locations, cable TV outlet locations, carbon monoxide detector locations, location of motors or special mechanical equipment, and location of unit load center panelboards. Include a electrical legend and notes, and room names.

(3) Use Net Floor Area Calculation Worksheet, and Kitchen Cabinet Size Calculation Worksheet, attached to this Section, in your proposal to support compliance with RFP criteria.

(4) Rendering. Provide one rendering of a typical unit, exterior view, in color, full size (24 inches by 36 inches).

b) SITE DESIGN

(1) Site Analysis Narrative. Provide a description of the basic site layout and the rationale behind the site design. Discuss the existing site conditions, proposed grading, paving, erosion control, storm drainage, utilities, and power distribution system and the rationale behind the design and selection of proposed systems, materials, and equipment. Discuss the electrical service to the site and the housing units. Identify type wire. Identify whether aerial or underground. In addition, address how the proposal accomplishes the Air Force neighborhood "Goal" through the five site development Objectives presented on page 25 of the Air Force Family Housing Guide, Chapter 3 - Neighborhood Design, paragraph Goals and Objectives (see Appendices). This shall be a comprehensive look at the new housing neighborhood including the follow-on phase of development. Also address environmental conditions, prevailing winds, solar effect, and the relationship of the site to the surrounding environment.

(2) Site Plans. Provide site plans at the following minimum detail providing information as below:

Drawing Type / Scale	Show This Information
Area Site Development Plan 1"=100'	?? Spatial and functional arrangement of all family housing requirements ?? **Adjacent streets (AM#3)** ?? Project and Installation Boundaries ?? Finish contours at 2'intervals ?? Drainage features and water retention ponds (if utilized) ?? Vehicular and pedestrian circulation ?? Housing types to include patios and fencing ?? Children's outdoor play areas ?? Sidewalks and jogging paths ?? **DELETED (AM#3)**
Site Plan 1"=50'	?? Layout for all site requirements. Show "Use Zones" in children's outdoor play areas ?? Landscaping and sodded and seeded areas ?? Utilities and utility entrance into housing unit walls ?? Existing Contours at 2'intervals ?? Finish contours at 2'intervals ?? **DELETED (AM#3)** ?? Vehicular and pedestrian circulation ?? Spacing between housing units ?? Children's play lots ?? Drawings shall be dimensioned to show building separations, set back, etc
Typical Tot Lot and other Recreational Facility Plan 1"=20'	?? Indicate equipment placement, equipment types and plan of play surface ?? Provide schedule of play equipment/facilities for all play areas to be provided by the project

Drawing Type / Scale	Show This Information
Typical Landscape Planting Plan and Landscape Schedule 1"=20'	?? Provide for Typical housing unit layouts, common areas, play facilities, etc ?? Provide Botanical/Common Names of plants used, size, and quantity of trees, shrubs, ground covers, related notes, and planting details ?? Provide schedule of total project landscaping and Turfing
Utility Plan 1"=50'	?? All site utility requirements ?? **Location of primary electrical supply point of take-off (AM#3)** ?? Site lighting ?? Primary cable routing (new and existing) ?? Pad-mounted transformers and service laterals ?? Cable television and telephone routing ?? Sewer lines and manholes ?? Storm drain lines, inlets, structures ?? Water lines ?? Gas lines
Off-Site Electrical/Utility Plan 1"=200'	?? **DELETED (AM#3)** ?? Existing electrical lines to remain, both overhead and underground, properly identified. ?? Off site Storm drain line/discharge with grade information

c) SUPPORTING DATA

Product Literature. The Offeror shall fill out and submit the attached form titled: Construction Materials, Products, Equipment, and Systems to indicate specific make and model of the proposed materials, products, equipment, and systems. In addition, the Offeror shall provide product literature for all items listed in this attached form including manufacturer's descriptive literature, technical data, performance charts and curves, catalog cuts, etc. The technical data proposed shall meet the specific requirements contained in this Solicitation. Organize the product literature in accordance with CSI MasterFormat and provide a table of contents.

(1) Recovered Materials. Include information on the use of EPA designated items composed of recovered (recycled) materials. Indicate specific material and equipment being proposed by highlighting model numbers and specific types and grades of materials on the manufacturer's catalog cut / literature. Recovered Materials shall be used to the maximum extent practicable. Practicable being defined (per 40 CFR CH.1, 247.3) as capable of being used consistent with (a) performance in accordance with applicable specifications, and (b) availability at a reasonable price, availability within a reasonable period of time, and maintenance of a satisfactory level of competition. Provide a list of materials proposed on this project (see Section 01670A RECYCLED/RECOVERED MATERIALS).

(2) Betterments and Enhancements. The Offeror shall identify on this form all proposed Betterments (materials, products, equipment, systems, etc) that exceed the basic requirements of the solicitation. This includes consideration of the items listed in the attached form and any other items furnished as part of the construction and delivery of the housing units. Any betterment included in the Offeror's proposal that is applicable to housing units shall be applicable for all the housing units. See Section 01000, Part 1 for list and priority of betterments.

(3) Deviations. The Offeror shall provide a list of all other deviations, deemed necessary by the Offeror, to achieve cost limitations, meet statutory requirements, and/or are mandatory due to technical flaws in the solicitation (i.e. performance, structural integrity, safety, maintainability, applicable code requirements, etc) in order to deliver the intended basic requirements of the solicitation. Each deviation shall include an explanation of why the Offeror believes the deviation is necessary.

d) (AM#2) ***Deleted***

7.2 TAB 8 CONCEPT DESIGN – EVALUATION

CONCEPT DESIGN contains **(AM#2) three subfactors that are listed in descending order of importance: Building Design, Site Design and Supporting Data.** Minimum compliance with requirements set forth in the RFP will achieve an "Average" rating. To achieve a higher rating requires providing stated betterments (such as ceramic tile in lieu of vinyl composition tile), enhancements (features not specifically mentioned such as half basketball courts in common areas), larger than minimum size living units, higher quality design of living units or site layout, etc. Deviations that, in the Government's evaluation, negatively conflict with the solicitation requirements may be evaluated unfavorably or even result in rejection of the proposal as non-responsive. CONCEPT DESIGN will be evaluated as follows:

a) BUILDING DESIGN

This factor has the following subfactors that are listed in descending order of importance except that the first two are approximately equal:

(1) Exterior Architectural Design. This part of the evaluation assesses the aesthetic qualities of the building exteriors including variety in facades, roof lines, and entrances, interesting staggering of housing units, proportions of fenestration in relation to elevations, visual effects of garages on the housing units, shadow effects, materials, and textures, proportion and scale within the structure and other aesthetic considerations. The exterior renderings provided in the RFP are meant to guide the offeror in the architectural style desired at Dyess AFB.

(2) Interior Architectural Design. This part of the evaluation assesses the elements of planning and designing the family housing unit interiors. Consideration will be given to the livability, flexibility, functionality and individuality of the floor plans. Also, consideration will be given to the overall sensory perception of the physical elements of the design including qualities of light, view, and acoustics.

(3) Floor Area and Kitchen Cabinet Size. Evaluators will review the area calculations submitted with the proposal. Proposals which meet the minimum area limitations set forth in the Solicitation will be evaluated as "Average." Area added to the units must have demonstrable positive impacts on family life and well being. The provision of additional square footage, in and of itself, does not require the awarding of additional consideration in this factor. The Offeror shall complete the Net Floor Area and Kitchen Cabinet area worksheets.

Offerors are cautioned that Minimum and Maximum net areas as well as Minimum and Maximum gross areas must be carefully adhered to; non-compliance may result in rejection of the proposal as non-conforming.

(4) Building Thermal and Acoustical Envelope. This factor addresses the energy efficiency of the building structure design and the acoustical characteristics of the total building envelope.

b) SITE DESIGN

This factor has the following subfactors that are listed in descending order of importance:

(1) Site Utilization and Neighborhood Identity. This part of the evaluation addresses overall site design excluding utilities and how successfully the proposed family housing site design uses the principal of spatial "hierarchy" to create a sense of neighborhood identification for residents. The evaluation will look at the use of open space, street layout and pedestrian and vehicle circulation in relationship to individual homes, sub-neighborhoods and the neighborhood community. Consideration will be given to the following elements:

(i.) Neighborhood Concept and Layout: Street hierarchy (minimize housing on collector streets, etc), solar orientation, visual buffering, open space, separation of units, setbacks and integration of future housing development.

(ii.) Children's Outdoor play Facilities. Evaluates the quality and quantity of play facilities.

(iii.) Pedestrian circulation and accessibility to recreation areas and within the neighborhood and surrounding area.

(iv.) Vehicle circulation: Occupant and service vehicle access considerations. This includes servicing the utilities located in the utility corridor as well as emergency vehicle access, mail delivery and trash pickup to units. Are traffic conflict points minimized and spacing between intersections maximized?

(2) Utilities and Drainage. This area of evaluation includes overall planning, layout, design and development of the site utility and drainage systems including the utility corridor. It embraces consideration of flexibility, maintenance, and accessibility. It includes evaluation of the design for the following systems: water distribution system; electrical system including site and street lighting, telephone and cable television; gas distribution system; and sanitary sewage system.

(3) Landscaping. This sub-factor evaluates the design, quality, quantity, and location of trees, shrubs, plantings, ground covers, and grass used to screen and enhance individual living units, streets and recreation areas. Considerations include screening, solar shading, decorative planting, plant material hardiness, plantings which screen between adjacent housing units, structures, and clusters to enhance privacy of the occupants. Number, size, type, and quality of trees and shrubs proposed are evaluated. Are foundation plantings provided as appropriate to meet low maintenance requirements? Are trees and shrubs used appropriately to define the open spaces? Are street trees provided in accordance with a street tree scheme for the hierarchy of streets in the area?

c) SUPPORTING DATA

This factor has the following subfactors which are listed in descending order of importance. Consideration will be given to the quality, durability, and degree and frequency of maintenance required for the equipment and materials proposed for the project based on the following elements:

(1) Housing Unit Exterior Materials. This part of the evaluation assesses the housing unit exterior construction materials and finishes.

(2) Housing Unit Interior Materials. This part of the evaluation assesses the housing unit interior construction materials and finishes.

(3) Housing Unit Mechanical Systems. This part of the evaluation assesses the housing unit mechanical systems including heating and air-conditioning, plumbing and ventilation.

(4) Appliances. This part of the evaluation assesses the quality and energy efficiency of all major appliances.

(5) Housing Unit Electrical Systems. This part of the evaluation assesses the housing unit electrical systems including power, lighting and communications.

(6) Site Equipment and Materials. This part of the evaluation assesses the quality of materials proposed for the project site development including civil, electrical and landscaping.

(7) **(AM#2) Betterments and** Enhancements. Desirable proposal features not addressed by the RFP **(AM#2) and those desired betterments** that are not categorized elsewhere in the evaluation system.

(8) Percentage of Recovered Material. Consideration will be given to the extent that EPA designated items are proposed for this project. The more materials offered, the higher the rating assigned.

d) (AM#2) ***Deleted***

7.3 TAB 9 PROJECT MANAGEMENT – SUBMITTAL REQUIREMENTS

PROJECT MANAGEMENT consists of two subfactors: Project Management Plan and Project Schedule.

a) PROJECT MANAGEMENT PLAN (PjMP)

The Offeror shall update the comprehensive Project Management Plan (PMP) furnished in Phase I and indicate (i.e. highlight) the changes specifically required for the first task order of this Contract.

b) PROJECT SCHEDULE

The Offeror shall provide a project schedule for design, site clearing and demolition, construction work for the first task order. Prepare in the form of a time-scaled (Gantt Chart) summary network diagram and graphically indicate sequences proposed to accomplish each general work operation including design and design reviews, site clearing and demolition, construction, phased turn-over of accepted units, final clean-up of premises, demolition of existing family housing in preparation for the next task order, and appropriate interdependencies among various activities. The schedule shall illustrate when finished units will be turned over in a phased manner. The proposed project schedule shall clearly indicate the total number of calendar days from Notice to Proceed proposed for task order performance. The proposed completion time will be a contract requirement. If the Offeror fails to complete the work within the time specified, the Offeror will be subject to liquidated damages (if applicable).

The Offeror shall provide a verification statement that the Contractor has read the contract requirements and that the number of days includes all design time, Government review time of all design submittals, construction time, and demolition time necessary to complete the project. The duration shall reflect the design and design review requirements addressed in the Section 01012 SUBMITTALS DURING DESIGN.

7.4 TAB 9 PROJECT MANAGEMENT – EVALUATION

PROJECT MANAGEMENT consists of two subfactors that are listed in descending order of importance . PROJECT MANAGEMENT will be evaluated as follows:

a) PROJECT SCHEDULE

Schedule will be evaluated for inclusion of all tasks identified in the PROJECT SCHEDULE submittal paragraph above. Offerors who propose and substantiate schedules that result in a period of performance of meeting that specified in Section 01001 DESIGN AND CONSTRUCTION SCHEDULE and illustrate a schedule of the phased turnover of finished units will receive a more favorable evaluation. (AM#2) **Proposals that indicate completion of the Task Order in fewer days are desirable and will be given more favorable consideration.** A proposal that is unrealistic or unsupported will be evaluated unfavorably.

b) PROJECT MANAGEMENT PLAN (PjMP)

Changes to the Project Management Plan will be evaluated for inclusion of all tasks identified in Task Order No. 1.

7.5 TAB 10 UTILIZATION OF SMALL BUSINESS CONCERNS – SUBMITTAL REQUIREMENTS

a) DEFINITIONS

(1) Small Business Concerns. For the purpose of this section, small business concerns refer to Small Business, Small Disadvantaged Business, Women-Owned Small Business, HUBZone Small Business, and Service Disabled Veteran-Owned Small Businesses.

(2) Prime Contractor. For the purpose of this section, a prime contractor refers to both large and small contractors.

(3) Offeror. For the purpose of this section, Offeror refers to both large and small contractors.

(4) Floor. Floor is the term the U.S. Army Corps of Engineers uses to replace goal. It represents the minimum level for small business performance.

b) SMALL BUSINESS

Only large business concerns must submit information for Tab 9 UTILIZATION OF SMALL BUSINESS CONCERNS. Small business concerns shall state their business size classification based on the NAICS code and size standard in Section 00100 of the solicitation.

c) LARGE BUSINESS

UTILIZATION OF SMALL BUSINESS CONCERNS, which consists of 5 subfactors: Subcontracting Floors, Mitigation Efforts, Utilization of Small Business Concerns, Description of Subcontracted Supplies and Services, and Acknowledgements.

The Offeror (only if a large business) shall demonstrate how it plans to identify, commit, and utilize Small Business (SB), Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB), HUBZone, and Severely Disabled Veteran-Owned Small Business (SDVOSB) concerns as team members, subcontractors and/or suppliers in the performance of the resultant contract of this solicitation. It is the policy of the U.S. Army Corps of Engineers that small business concerns have the maximum practicable opportunity to participate meaningfully in contracts. It is further the policy of the U.S. Army Corps of Engineers that Offerors (large business only) demonstrate the extent they plan to utilize small business concerns in any resultant contract and provide assurance in its offer that small business concerns will have maximum subcontracting opportunities. The proposal shall clearly state factors that demonstrate a strong commitment to use small business concerns.

(1) Subcontracting Floors: The Offeror (only if a large business) shall develop and identify percentage floors based on planned subcontracting that is challenging yet realistic. The following floors are considered reasonable and obtainable for the resulting contract:

(i.) 61.4% of planned subcontracting dollars to be placed with all small business concerns.
(ii.) 9.1% of planned subcontracting dollars to be placed with those small business concerns owned and controlled by socially and economically disadvantaged individuals.
(iii.) 5% of planned subcontracting dollars to be place with women-owned small business concerns.
(iv.) 3% of planned subcontracting dollars to be place with service-disabled veteran-owned small business.
(v.) 3% of planned subcontracting dollars to be place with HUBZone concerns.

(2) Mitigation Efforts: The Offeror (only if a large business) shall identify efforts that demonstrate its strategy to mitigate the effects of full and open competition on small business concerns. Specific examples of mitigation efforts via subcontracting include (but are not limited to):
(i.) Teaming with small businesses.
(ii.) Utilization of the Small Business Administration "PRO-*NET*" web site to research small business concerns (www.pronet.sba.gov).
(iii.) Exceed the small business subcontracting floors stated above in the subfactor for SUBCONTRACTING FLOORS.
(iv.) Apply small business subcontracting goals toward actual dollars awarded rather than a percentage of subcontracting dollars.
(v.) Ensure original small business team members have substantial subcontracting opportunities and preferences throughout the life of the contract.
(vi.) Assurances that all members of the Offeror’s team understand the rules, regulations and procedures governing the review of subcontracting plan, subcontracting reporting, and subcontracting compliance audits.
(vii.) Ensure periodic review small business subcontracting plan compliance.

(3) Utilization of Small Business Concerns: The Offeror (only if a large business) shall demonstrate utilization and participation of small business concerns (clearly stated factors that demonstrate strong commitments) as team members, subcontractors, and/or suppliers.

(4) Description of Subcontracted Supplies and Services: The Offeror (only if a large business) shall describe the supplies and services to be subcontracted and planned for subcontracting to SB, SDB, WOSB, SDVOSB, and HUBZone concerns.

(5) Acknowledgements

(i.) The Offeror (only if a large business) shall acknowledge: The Offeror will include FAR Clause 52.219-8, "Utilization Of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities. The Offeror will require subcontractors (including small business concerns) that receive subcontracts in excess of $500,000 for supplies or services and $1,000,000 for construction to adopt a small business participation program similar to the requirements of the resulting contract. The resulting subcontracting plan is a material part of the resulting contract. Therefore, failure to comply in good faith with the requirements of the subcontracting plan is in material breach of contract and can result in the Government assessing liquidated damages as stated in FAR Subpart 19.702.

(ii.) The Government may conduct comprehensive subcontracting compliance visits by the Contracting Officer (CO), Administrative Contracting Officer (ACO), and/or Small Business Administration.

(iii.) The Government may re-negotiate the subcontracting plan in the resulting contract if it is determined to be in the Government's best interests.

(iv.) The Government may negotiate subcontracting plans on individual task orders and apply goals/floors toward actual dollars awarded rather than a percentage of subcontracting dollars if it is determined to be in the Government's best interests.

(v.) The Offeror will twice annually (March and September) submit Standard Form 294, "Subcontracting Report for Individual Contracts" and Standard Form 295, "Summary Subcontract Report."

(vi.) The Offeror will include subcontracting plan compliance as an agenda item at periodic partnering meetings.

7.6 TAB 10 UTILIZATION OF SMALL BUSINESS CONCERNS – EVALUATION

a) SMALL BUSINESS

Small business concerns will receive the highest evaluating rating under TAB 9 UTILIZATION OF SMALL BUSINESS CONCERNS.

b) LARGE BUSINESS

Offerors will be formally evaluated under UTILIZATION OF SMALL BUSINESS CONCERNS which consists of 5 subfactors that are listed in descending order of importance:

(1) Subcontracting Floors: Offerors who propose subcontracting floors that exceed the suggested floors will receive a more favorable evaluation than Offerors with floors that merely meet the suggested floors.

(2) Mitigation Efforts: Offerors who demonstrate innovative and effective mitigation strategies in small business subcontracting will receive a more favorable evaluation than Offerors who merely meet the Government's minimum requirements.

(3) Utilization of Small Business Concerns: Offerors will be evaluated on their proposed utilization and participation of small business concerns as team members, subcontractors, and/or suppliers in the resulting contract. The Offeror's will be evaluated on it commitments that small business concerns will have maximum subcontracting opportunities. Enforceable commitments to use small business concerns will receive more favorable evaluations than non-enforceable commitments.

(4) Description of Subcontracted Supplies and Services: Offerors will be evaluated on their proposed utilization of supplies and services to be subcontracted and planned for subcontracting to SB, SDB, WOSB, SDVOSB, and HUBZone concerns. The Offerors will be evaluated on it commitments to utilizing supplies and services to be subcontracted and planned for subcontracting to SB, SDB, WOSB, SDVOSB, and HUBZone.

Enforceable commitments to use small business concerns will receive more favorable evaluations than non-enforceable commitments.

(5) Acknowledgments: Offerors who acknowledge the Government's subcontracting compliance efforts will receive a favorable evaluation. Offerors who omit acknowledgements to the Government's subcontracting compliance efforts will receive a less favorable evaluation. Offerors who qualify their acknowledgements to the Government's subcontracting compliance efforts may receive a less favorable evaluation depending on the effect of the qualification.

The evaluation of TAB 9 UTILIZATION OF SMALL BUSINESS CONCERNS is separate and distinct from the requirement at FAR Clause 52.219-9, "Small Business Subcontracting Plan." The Small Business Subcontracting Plan will be submitted by the successful Offeror after the source selection is complete.

7.7 PRICE – SUBMITTAL REQUIREMENTS

Submittals for PRICE shall be in a **separate binder as labeled as Volume III** and consisting of the following:

a) COVER LETTER

The Offeror will submit a cover letter containing:

(1) Solicitation number.
(2) Name, address, e-mail, and telephone and facsimile numbers of the Offeror.
(3) Names, titles, e-mail, and telephone and facsimile numbers of persons authorized to negotiate on the Offeror's behalf with the Government in connection with this solicitation.
(4) Name, title, and signature of the person authorized to sign the proposal.
(5) A statement specifying agreement with all terms, conditions provisions included in the solicitation.
(6) Deviations From the Solicitation: Offerors shall specifically identify, in a section entitled "DEVIATIONS," any significant deviations from the minimum solicitation requirements in Phase 2. All alternates shall be addressed and expanded upon in the appropriate tab in the proposal. This section is not intended for minute deviations and is separate from the deviation requirements in Section 00110, Tab 7C SUPPORTING DATA.
(7) Identification Of Items Exceeding Solicitation Requirements: Offerors shall list all significant items exceeding the minimum solicitation requirements in Phase 2. The list shall be entitled "IDENTIFICATION OF ITEMS EXCEEDING SOLICITATION REQUIREMENTS." All items listed shall be addressed and expanded upon in the appropriate tab in the proposal. This section is not intended for minute items exceeding requirements and is separate from the betterment requirement in Section 00110, Tab 8 c) SUPPORTING DATA.

b) STANDARD FORM 1442 AND PRICE PROPOSAL SCHEDULE

Offerors shall submit a Standard Form 1442 (SF 1442) with Blocks 14-20 completed, including acknowledging all . amendments in Block 19 of the SF 1442. Offerors shall submit a completed PRICE PROPOSAL SCHEDULE.

c) BONDING

(1) The Offeror shall furnish a guarantee in the form of a firm commitment (e.g., bid bond). See Section 00100 INSTRUCTIONS TO OFFERORS, clause BID GUARANTEE.

d) (AM#2) *Deleted*

7.8 PRICE – EVALUATION

The Cover Letter and SF 1442 will only be used in evaluating the Offeror's responsiveness, conformance to the Solicitation, and eligibility for award. Section 00010, Price Proposal Schedule, will be evaluated separately from other evaluation factors in Volumes I and II considering price reasonableness. A comparison of proposed price versus other price proposals and the Government Estimate will allow evaluation of price reasonableness.

a) (AM#2) *Deleted*.

8 FUNDING

The Design and Construction Cost Limitation for the First Task Order of this Contract is specified in the PRICE PROPOSAL SCHEDULE.

9 COMPETITIVE RANGE

Upon completion of Phase 2 evaluations, and if discussions are determined to be necessary, the Government may establish a competitive range for the purpose of conducting discussions. The competitive range will be determined on the basis of the factors stated in the Solicitation and shall only include proposals that have a reasonable chance of being selected for award. Offerors submitting proposals determined outside of the competitive range (lacking a reasonable chance of being selected for contract award) will be notified in writing at the earliest practicable time.

10 FINAL PROPOSAL REVISIONS

The Government reserves the right to evaluate Phase 2 proposals and award a contract without discussions with Offerors. Therefore, the Offeror's proposal shall contain the Offeror's best terms from a cost or price and technical standpoint. The Government also reserves the right to enter into discussions if determined to be in the Government's best interests. Proposal revisions in Phase 2 (if required) will be received at the time and place established by the Contracting Officer and communicated to the Offerors in the competitive range. Changes to evaluated factors in the proposal revisions will be reviewed and evaluated.

11 SELECTION PROCEDURES

When combined, the technical factors in Volume I and II are of approximately equal importance to the price factors in Volume III. Evaluations from Volumes I, II, and III will be compared utilizing the Tradeoff Process in FAR Subpart 15.101-1 in which the Government may accept other than the lowest priced proposal that represents the best overall value to the Government. After a selection has been made, the Government will contact the selected Offeror, advising the selection. The Government may reject any or all offers if such action is determined to be in the best interests of the Government.

12 AWARD OF CONTRACT

The Government will award a contract resulting from this Solicitation to the responsible Offeror whose proposal conforms to the Solicitation, represents the best value of all factors considered, and is judged to be the most advantageous to the Government.

13 DEBRIEFING

In accordance with FAR Subpart 15.505 and 15.506, an Offeror may request either a pre-award or post-award debriefing in writing within three calendar days of notice of elimination from competition. Each Offeror is entitled to only one debriefing per acquisition. Debriefing of Offerors, successful or unsuccessful, will be conducted by the Contracting Officer. Release of source selection information after award will be the responsibility of Contracting Division in conjunction with Office of Counsel, and in accordance with the Freedom of Information Act.

14 PROPOSAL EXPENSES AND PRECONTRACT COSTS

This solicitation does not commit the Government to pay costs incurred in preparation and submission of initial and subsequent proposals or for other costs incurred prior to award of a formal contract.

15 RELEASE OF INFORMATION

After receipt of proposals and until contract award, source selection information will not be furnished to any firm.

PERFORMANCE SUMMARY SHEET (CONSTRUCTION)

SOLICITATION NUMBER DACA63-R-0017

Contractor's Name:_____

Project Name:_____

Project Location:_____

Name & Title of Person Completing this Summary_____

Name of Firm of Person Completing this Summary:_____

Signature of Person Completing this Summary:_____

Date:_____ Phone Number:_____

1. Overall Rating of this Contractor:

____ Excellent

____ Above Average

____ High Average

____ Average

____ Poor

____ Unacceptable

2. Cost Growth:

Original Construction Contract Award Amount: _____

Final Construction Contract Amount: _____

In your opinion, which of the following statement best describes your experience with cost growth on this project:

____ a. The contractor did not contribute to any cost growth.

____ b. The contractor contributed to some degree to the cost growth experienced on this project.

____ c. The contractor contributed significantly to the cost growth experienced on this project.

Any additional cost growth comments:

PERFORMANCE SUMMARY SHEET (Construction, Page 2 of 2)

SOLICITATION NUMBER DACA63-02-R-0017

3. Time Growth:

Original Contract Completion Date: _____

Final Contract Completion Date: _____

In your opinion, which of the following statement best describes your experience with time growth on this project:

____ a. The contractor did not contribute to any time growth.

____ b. The contractor contributed to some degree to the time growth experienced on this project.

____ c. The contractor contributed significantly to the time growth experienced on this project.

Any additional time growth comments:

4. Quality: Which of the following statements most accurately describe the quality of the work the contractor provided on your project:

____ a. The work provided by the contractor was of high quality.

____ b. The work provided by the contractor was of fair quality.

____ c. The work provided by the contractor was of poor quality.

Any additional comments on quality:

5. The willingness of past customers to have a contractor perform more work for them is an indication of overall satisfaction with the contractor's performance. If you were to construct another project similar to the one recently completed, and you had the responsibility and total authority to select the contractor for the new project, which of the following statements most accurately depicts the approach you would take?

____ a. I would have this contractor construct the new project.

____ b. I would consider this contractor, but I would also explore the possibility of using other contractors to construct the project.

____ c. I would not consider using this contractor to construct the new project.

6. Any additional comments (additional sheets may be added, if necessary):

PERFORMANCE SUMMARY SHEET (DESIGN)

SOLICITATION NUMBER DACA63-02-R-0017

Designer's Name:_____

Project Name:_____

Project Location:_____

Name & Title of Person Completing this Summary_____

Name of Firm of Person Completing this Summary:_____

Signature of Person Completing this Summary:_____

Date:_____ Phone Number:_____

1. Overall Rating of this Designer:

____ Excellent

____ Above Average

____ High Average

____ Average

____ Poor

____ Unacceptable

2. Cost Growth:

In your opinion, which of the following statement best describes your experience with cost growth on this project:

____ a. The designer did not contribute to any cost growth.

____ b. The designer contributed somewhat to the cost growth experienced on this project.

____ c. The designer contributed significantly to the cost growth experienced on this project.

Any additional cost growth comments:

PERFORMANCE SUMMARY SHEET Designers (Part 2)

SOLICITATION NUMBER DACA63-02-R-0017

3. Time Growth:

In your opinion, which of the following statement best describes your experience with time growth on this project:

____ a. The designer did not contribute to any time growth.

____ b. The designer contributed somewhat to the time growth experienced on this project.

____ c. The designer contributed significantly to the time growth experienced on this project.

Any additional time growth comments:

4. Quality: Which of the following statements most accurately describe the quality of the work the designer provided on your project:

____ a. The work provided by the designer was of high quality.

____ b. The work provided by the designer was of fair quality.

____ c. The work provided by the designer was of poor quality.

Any additional comments on quality:

5. The willingness of past customers to have a designer perform more work for them is an indication of overall satisfaction with the designer's performance. If you were to design/construct another project similar to the one recently completed, and you had the responsibility and total authority to select the designer for the new project, which of the following statements most accurately depicts the approach you would take?

____ a. I would have this designer involved in the new project.

____ b. I would consider this designer, but I would also explore the possibility of using other designers on this project.

____ c. I would not consider using this designer on the new project.

6. Any additional comments (additional sheets may be added, if necessary):

NET FLOOR AREA CALCULATION WORKSHEET
(Page 1 of 2)

OFFEROR _____ UNIT TYPE _____

Exterior Wall Thickness: _____ inches

Gross Square Footage*: _____ SF (See Figures 4.2 & 4.3 of Air Force Family Housing Guide (Figure 4.1 has been superseded))

NET AREA* CALCULATIONS:

(*See Section 01000 STATEMENT OF WORK for the definitions of Gross and Net Areas.)

1. INTERIOR AREA (area within inside finishes of exterior walls):

Dimensions: _____ x _____ = _____SF

_____ x _____ = _____SF

_____ x _____ = _____SF

TOTAL INTERIOR AREA SF = _____SF

2. EXCLUDABLE AREA (if included in interior area above) (Dimensions to center line of enclosing interior partitions):

a. Utility Room:

Dimensions: _____ x _____ = _____SF

b. Laundry Room (if not in utility room)

Dimensions: _____ x _____ = _____SF

c. Washer and Dryer Space (if not already included in separate utility or laundry room. Allowable is 30 SF)

= _____SF

d. Interior Bulk Storage Rooms: (do not include bedroom/bathroom closets and entry way closets)

Dimensions: _____ x _____ = _____SF

_____ x _____ = _____SF

_____ x _____ = _____SF

NET FLOOR AREA CALCULATION WORKSHEET

(Page 2 of 2)

OFFEROR _____ UNIT TYPE _____

e. Furnace/Air Cond/DHW/Ductwork/Stacks (if not included in other excludable areas):

Dimensions: _____ x _____ = _____SF

f. Greenhouse (if used in a passive solar design):

Dimensions: _____ x _____ = _____SF

g. Stairway (to basement if included):

Dimensions: _____ x _____ = _____SF

h. Unfinished attic space and basements; porches, open or screened; terraces and patios; garages; and other solar appurtenances (only if included in interior area calculations):

Dimensions: _____ x _____ = _____SF

_____ x _____ = _____SF

_____ x _____ = _____SF

i. Additional space needed for handicap adaptability (as appropriate and only if not included in other excludable areas):

Dimensions: _____ x _____ = _____SF

j. TOTAL EXCLUDABLE SPACE = _____SF

3. Net Area (subtract 2.j. from 1.):

TOTAL NET AREA = _____SF

(basic = _____SF, maximum = _____SF)

KITCHEN CABINET SIZE CALCULATION WORKSHEET
Page 1 of 1

OFFEROR _____ UNIT TYPE _____

	Provided	Required
Wall Cabinet	_____ SF	_____ SF
Base Cabinet	_____ SF	_____ SF
Drawer Area	_____ SF	_____ SF
Counter Top*	_____ SF	_____ SF
Percentage of Required Area	_____ SF	_____ SF

* Exclusive of area by sink and range.

CONSTRUCTION MATERIALS, PRODUCTS, EQUIPMENT, AND SYSTEMS

For **each** listed item of construction materials, products, equipment, and systems listed after this page, provide the following information. See attached sample form following the list of Construction Materials, Products, Equipment, and Systems:

A. Manufacturer, Grade, Type, Thickness, Finishes, Warranty Period, Model Number and any other information that will describe the item being provided. Only applicable information shall be provided. A standard form is attached *(may be edited as a Microsoft WORD file, location is on CD-ROM in folder "Guides", file name is "stdform.doc". Edit and print as many as needed for completion of TAB 7 c), Supporting Data)* that may be edited as appropriate for each category and item listed below. Submit one form for each item listed. The Contractor may generate an equivalent form that utilizes the same format as this standard form.

B. Manufacturer's Data Cut-Sheet and Proposal Reference Location Number for each item listed.

Identify any item that is considered a Betterment (Exceeds the requirements of the solicitation). This shall be noted in the information to be provided for each item and shall also be listed under Betterments item below.

Identify any item that is considered a Deviation to the requirements of the solicitation. This shall be noted in the information to be provided for each item and shall also be listed under Deviations item below.

1. HOUSING UNIT EXTERIOR MATERIALS AND FINISHES

Exterior Walls

Foundation System
Waterproofing System
Foundation Drainage System
Framing
Insulation (All Types)
Sheathing
Air Infiltration Barrier
Vapor Retarder Membrane
Siding
Fascia / Trim
Soffit
Exterior Paints
Doors and Hardware
Windows / Screens
Garage Doors

Roof

Framing
Vapor Retarder Membrane
Ice & Water Barrier
Sheathing
Insulation
Shingles
Attic Ventilation
Gutters & Downspouts

2. HOUSING UNIT INTERIOR MATERIALS AND FINISHES

Walls, Floors & Finishes

Concrete Floors on Grade
Framing
Structural Floor Decking
Doors and Hardware (All Areas)*
Stairs & Railings
Floor Covering (All Rooms)*
Wall & Ceiling Finish (Paint) – All Rooms*
Trim (All Rooms)*

* - A schedule may be provided for these items along with other required data.

Bathroom

Water Closets
Sinks
Faucets
Bathtub and/or Shower Enclosure
Vanities, Cabinets & Hardware
Accessories

Kitchen

Cabinets and Hardware
Sinks
Faucets
Counter Tops

3. SITE EQUIPMENT AND MATERIALS

Playground Equipment
Landscaping
Driveways
Sidewalks
Patios
Fencing
Water Distribution
Sanitary Sewer
Exterior Electrical Distribution
Gas Distribution
Street Lighting

4. HOUSING UNIT MECHANICAL SYSTEMS

Water Heater
Plumbing (Piping)
Heating (Furnace)
Air-Conditioning
Exhaust Systems
Ductwork

5. HOUSING UNIT ELECTRICAL SYSTEMS

Distribution Panel
Electrical Wiring
Lighting Fixtures (Each Type)
Communication Systems (Telephone & Cable T.V.)

6. APPLIANCES

Refrigerator
Range
Range Hood
Dish Washer
Garbage Disposal

7. RECOVERED MATERIALS

Provide a list of all proposed materials composed of recovered (recycled) materials

8. BETTERMENTS

Provide a list of Betterments (materials, products, equipment, systems, etc) that exceed the basic requirements of the solicitation. This includes consideration of the items listed above and any other items furnished as part of the construction and delivery of the housing units.

9. DEVIATIONS

Provide a list of all other deviations, deemed necessary by the Offeror, to achieve cost limitations, meet statutory requirements, and/or are mandatory due to technical flaws in the solicitation (i.e. performance, structural integrity, safety, maintainability, applicable code requirements, etc) in order to deliver the intended basic requirements of the solicitation. Each deviation shall include an explanation of why the Offeror believes the deviation is necessary. The Government believes the solicitation requirements are technically sound, comply with all statutory requirements, and are awardable within the specified cost limitation. Deviations that, in the Government's evaluation, negatively conflict with the solicitation requirements may be evaluated unfavorably or even result in rejection of the proposal as non-responsive.

SAMPLE FORM

CONSTRUCTION MATERIALS, PRODUCTS, EQUIPMENT, AND SYSTEMS

1. [HOUSING UNIT EXTERIOR MATERIALS AND FINISHES]

(Insert the title of Items 1 through 9 as applicable)

[EXTERIOR WALLS] (Insert the appropriate category as applicable)

FRAMING (Or appropriate item as applicable)

Manufacturer - Source	
Product Name	
Model Number	
Size – Capacity	
Grade – Type - Classification	
Use – Location	
Warranty - Period	
Description	
Recycled Content	
Other Characteristics	
Betterment (Yes/No/NA – Explain)	
Deviation (Yes/No/NA – Explain)	

End of Section

SPECIAL NOTICE TO OFFERERS WITH REGARD TO SUBJECT PROJECT SOLICITATION/AWARD AND THE SERVICE CONTRACT ACT AND DAVIS –BACON ACT WAGE DETERMINATIONS (DECISIONS) INCORPORATED THEREIN:

Please note that only those wage Decision/Rates applicable to Dyess Air Force Base (Taylor County), Texas have been incorporated within the solicitation/award. This action has been taken due to the preponderance of Delivery/Task Orders anticipated to be issued for those installations within this specific County under this solicitation/award.

In accordance with FAR 22.404-9. Award of Contract Without Required Wage Determination, if a Delivery/Task Order is issued for any area, within the geographic boundaries of the U.S. Army Corps of Engineers, other than those counties for which the applicable wage determinations have been incorporated – then that wage decision(s) will be incorporated by contract modification and contract pricing equitably adjusted.

APPLICATION OF WAGE DECISIONS

SOLICITATION NO: DACA63-02-R-0017
PROJECT: IDIQ FOR DESIGN-BUILD REPLACE FAMILY HOUSING
LOCATION: DYESS AFB, TEXAS TAYLOR COUNTY

1. Service Contract ACT (SCA) Wage Determination Number 94-2517, Revision 23, will be applicable to those activities performed installation support requirement for certain minor maintenance repairs, clerical support services, grounds maintenance, and landscaping or those services requiring the utilization of professional/service employees, i.e., Biologists, Agronomists, Environmentalists, Environmental Abatement, Computer Specialists, Architects/Engineers, Surveyors, and associated Technicians thereof of the profession/technical trades.

Note: Payroll records are not required to be submitted to the U.S. Army Corps of Engineers for work performed under the Service Contract Act (SCA). SCA payroll records are required to be kept by the Prime Contractor and available for review if requested , for a minimum of three years from the date of contract completion. Labor compliance will be monitored by the U.S. Department of Labor for SCA labor records.

2. Davis-Bacon Wage Decision TX020076, RESIDENTIAL BUILDING projects are those involving the construction, alteration, or repair of single family houses or apartment buildings of no more than four (4) stories in height. This includes all incidental items such as site work, storm drainage, roads and street lighting, privacy fencing, sidewalks, electrical distribution, gas & water distribution, sanitary sewer, turfing and landscaping, and demolition with asbestos abatement of like number of houses.

NOTE:
(1) CERTIFIED PAYROLL RECORDS ARE REQUIRED, UNDER THE DAVIS-BACON AND RELATED ACTS (DBRA), **AND MUST BE SUBMITTED WEEKLY,** TO THE U.S.ARMY CORPS OF ENGINEERS, FOR ALL CONSTRUCTION PERFORMED.

(2) THE CONTRACT NUMBER AND WAGE DECISION NUMBER APPLICABLE TO THE WORK PERFORMED FOR EACH CERTIFIED PAYROLL PERIOD, **IS TO BE SHOWN (ANNOTATED) ON EACH AND EVERY CERIFIED PAYROLL RECORD SUBMITTED. MULTIPLE WAGE DECISION USAGE DURING ANY ONE-WORK PERIOD SHALL ALSO BE SO ANNOTATED TO THE CERTIFIED PAYROLL RECORD.**

***** Any questions Prospective Bidders may have with regard to Davis-Bacon Act Wage Decision Applicability must be addressed to the Fort Worth District Contracting Division Labor Relations Team at 1-800-443-7914.

WAGE DETERMINATION NO: 94-2517 REV (23) AREA: TX,NORTHWEST TEXAS

WAGE DETERMINATION NO: **94-2517** REV (23) AREA: TX,NORTHWEST TEXAS
REGISTER OF WAGE DETERMINATIONS UNDER | U.S. DEPARTMENT OF LABOR
FOR OFFICIAL USE ONLY BY FEDERAL AGENCIES PARTICIPATING IN MOU WITH DOL
| WASHINGTON D.C. 20210
|
|
|
| **Wage Determination No.: 1994-2517**
William W.Gross Division of | **Revision No.: 23**
Director Wage Determinations | **Date Of Last Revision: 05/29/2002**

States: New Mexico, Oklahoma, Texas
Area: New Mexico Counties of Curry, Lea, Quay, Roosevelt, Union
Oklahoma Counties of Beaver, Cimarron, Texas
Texas Counties of Andrews, Armstrong, Bailey, Borden, Brewster, Briscoe, Brown, Callahan, Carson, Castro, Childress, Cochran, Coke, Coleman, Collingsworth, Comanche, Concho, Cottle, Crane, Crockett, Crosby, Dallam, Dawson, Deaf Smith, Dickens, Donley, Eastland, Ector, Fisher, Floyd, Foard, Gaines, Garza, Glasscock, Gray, Hale, Hall, Hansford, Hardeman, Hartley, Haskell, Hemphill, Hockley, Howard, Hutchinson, Irion, Jeff Davis, Jones, Kent, Kimble, King, Knox, Lamb, Lipscomb, Loving, Lubbock, Lynn, Martin, McCulloch, Menard, Midland, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Parmer, Pecos, Potter, Presidio, Randall, Reagan, Reeves, Roberts, Runnels, Schleicher, Scurry, Shackelford, Sherman, Stephens, Sterling, Stonewall, Sutton, Swisher, **Taylor**, Terrell, Terry,Throckmorton, Tom Green, Upton, Ward, Wheeler, Winkler, Yoakum, Young

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Fringe Benefits Required Follow the Occupational Listing

OCCUPATION TITLE	MINIMUM WAGE RATE
Administrative Support and Clerical Occupations	
Accounting Clerk I	7.71
Accounting Clerk II	8.42
Accounting Clerk III	10.52
Accounting Clerk IV	12.35
Court Reporter	13.99
Dispatcher, Motor Vehicle	11.74
Document Preparation Clerk	11.95
Duplicating Machine Operator	11.95
Film/Tape Librarian	10.84
General Clerk I	8.16
General Clerk II	9.17
General Clerk III	16.25
General Clerk IV	16.70
Housing Referral Assistant	14.92
Key Entry Operator I	6.86
Key Entry Operator II	8.70
Messenger (Courier)	7.68
Order Clerk I	9.34
Order Clerk II	10.22
Personnel Assistant (Employment) I	10.66
Personnel Assistant (Employment) II	11.97

Personnel Assistant (Employment) III	16.57
Personnel Assistant (Employment) IV	16.79
Production Control Clerk	14.93
Rental Clerk	10.84
Scheduler, Maintenance	11.90
Secretary I	11.45
Secretary II	16.30
Secretary III	16.46
Secretary IV	18.29
Secretary V	20.26
Service Order Dispatcher	10.21
Stenographer I	10.44
Stenographer II	10.85
Supply Technician	16.25
Survey Worker (Interviewer)	13.39
Switchboard Operator-Receptionist	9.35
Test Examiner	15.39
Test Proctor	15.39
Travel Clerk I	8.54
Travel Clerk II	9.15
Travel Clerk III	9.73
Word Processor I	10.31
Word Processor II	12.90
Word Processor III	14.44
Automatic Data Processing Occupations	
Computer Data Librarian	10.33
Computer Operator I	9.21
Computer Operator II	11.74
Computer Operator III	15.77
Computer Operator IV	17.52
Computer Operator V	19.40
Computer Programmer I (1)	15.24
Computer Programmer II (1)	18.94
Computer Programmer III (1)	23.09
Computer Programmer IV (1)	27.94
Computer Systems Analyst I (1)	18.11
Computer Systems Analyst II (1)	22.70
Computer Systems Analyst III (1)	24.70
Peripheral Equipment Operator	10.76
Automotive Service Occupations	
Automotive Body Repairer, Fiberglass	17.49
Automotive Glass Installer	17.73
Automotive Worker	17.73
Electrician, Automotive	18.94
Mobile Equipment Servicer	15.35
Motor Equipment Metal Mechanic	20.11
Motor Equipment Metal Worker	17.73
Motor Vehicle Mechanic	20.38
Motor Vehicle Mechanic Helper	14.18
Motor Vehicle Upholstery Worker	16.56
Motor Vehicle Wrecker	17.73
Painter, Automotive	18.94
Radiator Repair Specialist	17.73
Tire Repairer	12.90
Transmission Repair Specialist	20.11
Food Preparation and Service Occupations	
Baker	8.74

Cook I	7.72
Cook II	8.85
Dishwasher	6.28
Food Service Worker	6.78
Meat Cutter	11.06
Waiter/Waitress	6.71
Furniture Maintenance and Repair Occupations	
Electrostatic Spray Painter	16.47
Furniture Handler	10.26
Furniture Refinisher	16.47
Furniture Refinisher Helper	12.33
Furniture Repairer, Minor	14.40
Upholsterer	16.47
General Services and Support Occupations	
Cleaner, Vehicles	6.16
Elevator Operator	6.16
Gardener	7.10
House Keeping Aid I	6.13
House Keeping Aid II	6.16
Janitor	6.16
Laborer, Grounds Maintenance	6.79
Maid or Houseman	6.13
Pest Controller	9.07
Refuse Collector	7.10
Tractor Operator	8.14
Window Cleaner	6.79
Health Occupations	
Dental Assistant	10.93
Emergency Medical Technician (EMT)/Paramedic/Ambulance Driver	10.93
Licensed Practical Nurse I	10.65
Licensed Practical Nurse II	11.96
Licensed Practical Nurse III	13.37
Medical Assistant	9.77
Medical Laboratory Technician	10.79
Medical Record Clerk	11.24
Medical Record Technician	13.54
Nursing Assistant I	7.14
Nursing Assistant II	8.02
Nursing Assistant III	8.75
Nursing Assistant IV	9.82
Pharmacy Technician	12.19
Phlebotomist	11.96
Registered Nurse I	16.66
Registered Nurse II	20.40
Registered Nurse II, Specialist	20.40
Registered Nurse III	24.68
Registered Nurse III, Anesthetist	24.68
Registered Nurse IV	29.56
Information and Arts Occupations	
Audiovisual Librarian	12.67
Exhibits Specialist I	14.08
Exhibits Specialist II	17.17
Exhibits Specialist III	18.11
Illustrator I	14.08
Illustrator II	17.17
Illustrator III	18.11
Librarian	18.20

Library Technician	12.28
Photographer I	11.14
Photographer II	15.63
Photographer III	16.46
Photographer IV	20.08
Photographer V	24.35
Laundry, Dry Cleaning, Pressing and Related Occupations	
Assembler	6.60
Counter Attendant	6.60
Dry Cleaner	7.94
Finisher, Flatwork, Machine	6.60
Presser, Hand	6.60
Presser, Machine, Drycleaning	6.60
Presser, Machine, Shirts	6.60
Presser, Machine, Wearing Apparel, Laundry	6.60
Sewing Machine Operator	8.37
Tailor	8.82
Washer, Machine	7.03
Machine Tool Operation and Repair Occupations	
Machine-Tool Operator (Toolroom)	16.47
Tool and Die Maker	24.00
Material Handling and Packing Occupations	
Forklift Operator	11.66
Fuel Distribution System Operator	13.35
Material Coordinator	16.25
Material Expediter	16.25
Material Handling Laborer	9.52
Order Filler	10.07
Production Line Worker (Food Processing)	12.60
Shipping Packer	8.91
Shipping/Receiving Clerk	8.91
Stock Clerk (Shelf Stocker; Store Worker II)	9.99
Store Worker I	8.29
Tools and Parts Attendant	10.25
Warehouse Specialist	12.60
Mechanics and Maintenance and Repair Occupations	
Aircraft Mechanic	17.49
Aircraft Mechanic Helper	12.33
Aircraft Quality Control Inspector	20.49
Aircraft Servicer	14.40
Aircraft Worker	15.42
Appliance Mechanic	16.47
Bicycle Repairer	12.90
Cable Splicer	18.97
Carpenter, Maintenance	16.47
Carpet Layer	15.42
Electrician, Maintenance	19.36
Electronics Technician, Maintenance I	17.23
Electronics Technician, Maintenance II	21.02
Electronics Technician, Maintenance III	22.35
Fabric Worker	14.40
Fire Alarm System Mechanic	17.49
Fire Extinguisher Repairer	13.35
Fuel Distribution System Mechanic	17.49
General Maintenance Worker	13.82
Heating, Refrigeration and Air Conditioning Mechanic	17.49
Heavy Equipment Mechanic	17.49

Heavy Equipment Operator	17.49
Instrument Mechanic	17.49
Laborer	10.36
Locksmith	16.47
Machinery Maintenance Mechanic	17.72
Machinist, Maintenance	17.84
Maintenance Trades Helper	12.33
Millwright	17.49
Office Appliance Repairer	16.47
Painter, Aircraft	16.59
Painter, Maintenance	16.47
Pipefitter, Maintenance	17.49
Plumber, Maintenance	16.47
Pneudraulic Systems Mechanic	17.49
Rigger	17.49
Scale Mechanic	15.42
Sheet-Metal Worker, Maintenance	17.49
Small Engine Mechanic	15.42
Telecommunication Mechanic I	18.47
Telecommunication Mechanic II	19.55
Telephone Lineman	18.04
Welder, Combination, Maintenance	17.49
Well Driller	18.64
Woodcraft Worker	17.49
Woodworker	13.82
Miscellaneous Occupations	
Animal Caretaker	6.97
Carnival Equipment Operator	8.89
Carnival Equipment Repairer	7.76
Carnival Worker	6.73
Cashier	7.15
Desk Clerk	9.46
Embalmer	17.93
Lifeguard	9.42
Mortician	17.93
Park Attendant (Aide)	11.84
Photofinishing Worker (Photo Lab Tech., Darkroom Tech)	8.56
Recreation Specialist	10.38
Recycling Worker	10.31
Sales Clerk	9.24
School Crossing Guard (Crosswalk Attendant)	5.90
Sport Official	9.42
Survey Party Chief (Chief of Party)	13.89
Surveying Aide	9.67
Surveying Technician (Instr. Person/Surveyor Asst./Instr.)	13.26
Swimming Pool Operator	9.24
Vending Machine Attendant	8.95
Vending Machine Repairer	11.06
Vending Machine Repairer Helper	8.95
Personal Needs Occupations	
Child Care Attendant	8.60
Child Care Center Clerk	10.72
Chore Aid	5.91
Homemaker	13.16
Plant and System Operation Occupations	
Boiler Tender	17.49
Sewage Plant Operator	16.47

Stationary Engineer	17.49
Ventilation Equipment Tender	12.33
Water Treatment Plant Operator	16.47
Protective Service Occupations	
Alarm Monitor	11.39
Corrections Officer	14.99
Court Security Officer	15.56
Detention Officer	14.99
Firefighter	14.97
Guard I	7.12
Guard II	9.58
Police Officer	18.63
Stevedoring/Longshoremen Occupations	
Blocker and Bracer	15.77
Hatch Tender	15.77
Line Handler	15.77
Stevedore I	14.72
Stevedore II	16.83
Technical Occupations	
Air Traffic Control Specialist, Center (2)	28.21
Air Traffic Control Specialist, Station (2)	19.46
Air Traffic Control Specialist, Terminal (2)	21.43
Archeological Technician I	13.01
Archeological Technician II	14.57
Archeological Technician III	18.03
Cartographic Technician	20.82
Civil Engineering Technician	18.03
Computer Based Training (CBT) Specialist/ Instructor	20.53
Drafter I	10.26
Drafter II	12.20
Drafter III	17.12
Drafter IV	18.03
Engineering Technician I	11.47
Engineering Technician II	11.95
Engineering Technician III	13.43
Engineering Technician IV	17.28
Engineering Technician V	21.09
Engineering Technician VI	25.57
Environmental Technician	15.24
Flight Simulator/Instructor (Pilot)	23.33
Graphic Artist	17.85
Instructor	17.58
Laboratory Technician	13.72
Mathematical Technician	18.03
Paralegal/Legal Assistant I	15.44
Paralegal/Legal Assistant II	15.81
Paralegal/Legal Assistant III	19.34
Paralegal/Legal Assistant IV	23.40
Photooptics Technician	16.85
Technical Writer	21.27
Unexploded (UXO) Safety Escort	17.93
Unexploded (UXO) Sweep Personnel	17.93
Unexploded Ordnance (UXO) Technician I	17.93
Unexploded Ordnance (UXO) Technician II	21.70
Unexploded Ordnance (UXO) Technician III	26.01
Weather Observer, Combined Upper Air and Surface Programs (3)	13.66
Weather Observer, Senior (3)	15.17

Weather Observer, Upper Air (3)	13.66
Transportation/ Mobile Equipment Operation Occupations	
Bus Driver	12.56
Parking and Lot Attendant	5.86
Shuttle Bus Driver	8.15
Taxi Driver	7.84
Truckdriver, Heavy Truck	12.51
Truckdriver, Light Truck	9.21
Truckdriver, Medium Truck	12.07
Truckdriver, Tractor-Trailer	12.51

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:
HEALTH & WELFARE: $2.15 an hour or $86.00 a week or $372.67 a month
VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 8 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)
HOLIDAYS: A minimum of ten paid holidays per year: New Year's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)
THE OCCUPATIONS WHICH HAVE PARENTHESES AFTER THEM RECEIVE THE FOLLOWING BENEFITS (as numbered):
(1) Does not apply to employees employed in a bona fide executive, administrative, or professional capacity as defined and delineated in 29 CFR 541. (See CFR 4.156)
(2) APPLICABLE TO AIR TRAFFIC CONTROLLERS ONLY - NIGHT DIFFERENTIAL: An employee is entitled to pay for all work performed between the hours of 6:00 P.M. and 6:00 A.M. at the rate of basic pay plus a night pay differential amounting to 10 percent of the rate of basic pay.
(3) WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).
HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges. A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and

hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.
** UNIFORM ALLOWANCE **
If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

** NOTES APPLYING TO THIS WAGE DETERMINATION **

Source of Occupational Title and Descriptions:

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations," Fourth Edition, January 1993, as amended by the Third Supplement, dated March 1997, unless otherwise indicated. This publication may be obtained from the Superintendent of Documents, at 202-783-3238, or by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Copies of specific job descriptions may also be obtained from the appropriate contracting officer.
REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444(SF 1444)}
Conformance Process:
The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(s) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to

which a class(s) is to be conformed. The process for preparing a conformance request is as follows:
(1) When preparing the bid, the contractor identifies the need for a conformed occupation(s)and computes a proposed rate(s).
(2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(s) of employees performs any contract work.
(3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of regulations 29 CFR Part 4).
(4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.
(5) The contracting officer transmits the Wage and Hour decision to the contractor.
(6) The contractor informs the affected employees. Information required by the Regulations must be submitted on SF 1444 or bond paper. When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

GENERAL DECISION TX020076 03/01/02 TX76
General Decision Number TX020076

Superseded General Decision No. TX010076

State: TEXAS

Construction Type:
RESIDENTIAL

Counties:

CALLAHAN	FISHER	STEPHENS
EASTLAND	JONES	**TAYLOR**
ERATH	NOLAN	YOUNG

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories)

Modification Number	**Publication Date**
0	**03/01/2002**

COUNTIES:

CALLAHAN	FISHER	STEPHENS
EASTLAND	JONES	**TAYLOR**
ERATH	NOLAN	YOUNG

SUTX4011A 12/01/1982

	Rates	Fringes
AIR CONDITIONING MECHANICS	8.00	
BRICKLAYERS	9.00	
CARPENTERS	8.02	
CEMENT MASONS	6.00	
ELECTRICIANS	9.375	
INSULATORS	7.50	
LABORERS	5.15	
PAINTERS	8.00	
POWER EQUIPMENT OPERATORS:		
Dozers	5.15	
Rollers	5.625	
Tractors	5.15	
PLUMBERS	9.00	
ROOFERS	7.00	
SHEET METAL WORKERS	6.00	
TILE SETTERS	7.785	
TRUCK DRIVERS	5.75	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively

bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* An existing published wage determination
* A survey underlying a wage determination
* A Wage and Hour Division letter setting forth a position on a wage determination matter
* A conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

SECTION 01000
STATEMENT OF WORK (TASK ORDER No. 1)

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SECTION 01000
STATEMENT OF WORK (TASK ORDER No. 1)

PART 1 - DESIGN AND CONSTRUCTION OBJECTIVES

INDEX

1 DESIGN AND CONSTRUCTION OBJECTIVES

The design and construction of Family Housing Units for FY03, shall comply with specifications and requirements contained in this Request for Proposals (RFP). Requirements for new construction emphasize low maintenance exterior and interior finishes, as well as high energy efficiency. Landscaping shall conform to native type and low maintenance principals. The design and technical criteria contained and cited in this RFP establishes minimum standards for design and construction quality except where maximum sizes are identified for the housing unit net floor area, the number of housing units per building, and the interior/exterior bulk storage spaces.

The objective is to allow prospective proposers maximum latitude in providing site design, housing types, designs and materials to serve the Government's needs as Owner/Operator of suitable permanent quarters for military personnel and their families.

1.1 SCOPE OF WORK

The objective of this solicitation is to obtain housing complete and adequate for assignment as quarters for military personnel and their families. The scope of work consists of the demolition of 84 existing housing units and the construction of 85 new housing units, which includes five units as Options (see Price Proposal Schedule) . It is important to note that the Government intends that the Offeror develop his technical and price proposal to include all 85 new units and demolition within funds available. Design and construction requires a mixture of two-bedroom and three-bedroom units on Government-owned land at Dyess AFB, TX. See Table 1-1 for the required building size and configuration standards. The site for this project will be made available to the Contractor upon award in accordance with requirements given in Section 00800 and Section 01001.

The proposal documents shall include adequate information in the form of narratives, drawings, calculations, catalog cuts, etc., to enable the Government to adequately review the proposal. See Section 00110 PROPOSAL SUBMISSION REQUIREMENTS AND INSTRUCTIONS for complete requirements.

1.2 REQUIREMENTS AND DESCRIPTIONS OF WORK

1.2.1 NEW HOUSING UNITS

Family housing units shall be provided with attached garage, exterior storage, individual central heating systems, energy conservation systems and central air conditioning, and including the following Contractor-furnished/Contractor-installed (CF/CI) equipment and appliances: refrigerators, garbage disposals, dishwashers, water heaters, range/ovens, range hoods, automatic garage door opener rough-in, ceiling fan rough-in circuits for future fan, wall mounted switches for fan and light and properly braced ceiling fan mounting box, smoke detectors and carbon monoxide detectors. Occupant-furnished/Occupant-installed (OF/OI) equipment and appliances includes the following: microwave ovens, washers, dryers, and ceiling fans {AM#0003} (unless Option for ceilings fans is awarded). Family housing units shall be a mix of two-bedroom units and three-bedroom units. Design units so that direct access to the garage from the residence is accomplished without exterior exposure. {AM#0003} Design a minimum of 80% of garages for side vehicular entrance (garages do not face street). All units shall be single story construction.

1.2.2 SIZE STANDARDS

Table 1-1 indicates the allowable size standards with regard to Net Square Footage (NSF) and Gross Square Footage (GSF) for Junior Noncommissioned officer (JNCO), ranks E-1 through E-6. Minimum and maximum ranges are given in this table in terms of NSF and GSF. See Part 9 of Section 01000 for NSF and GSF definitions. Technical proposals which provide larger living units by providing functional, useable space above minimum requirements will be rated higher in appropriate categories than smaller units. The range provided allows the Offeror flexibility to address site and budget constraints. The Government encourages Offerors to maximize space within living units but cautions that maximums can not be exceeded. Site standoffs and clearances must be met and budget limitations are real.

Table 1-1
Housing Unit And Building Size/Configuration Standards

Required Number of Housing Units (including Options)	Bedroom Count	Required Building Type	Minimum Building Config.	Desired Building Configuration (Betterment)	Housing Unit				Req'd Side Entry Garage
					Minimum Area		Maximum Area		
					NSF	GSF	NSF	GSF	
36	2 BR	1-Story	Duplex	Duplex	950	1180	1210	1500	1-Car
49	3 BR	1-Story	Duplex	Detached	1200	1490	1420	1760	1-Car

NOTES:

1. Garages do not count as gross square footage. See Part 9 for area definitions.
2. Building density shall not exceed two units (Duplex) per building
3. Minimum and maximum areas listed above supersede those listed in the Air Force Family Housing Guide, Chapter 4.
4. 80 housing units is Base Bid {AM#0003} with three 3-BR units and two 2-BR units as Options.
5. Duplex buildings shall be configured only as two 2-BR units or two 3-BR units.

1.2.3 ACCESSIBLE UNITS

Two 2-bedroom units and three 3-bedroom units shall be provided with special accessibility features. These five housing units shall be part of the Base Bid and shall be designed and built in such a way that they may be easily and readily modified to accommodate physically challenged occupants at time of occupancy, except as noted herein. Design of adaptable housing units shall conform to the Uniform Federal Accessibility Standards (UFAS), the Department of Justice Regulation 28 CFR Part 36 and the American Disabilities Act (ADA). Adaptable housing units shall be well dispersed throughout the development and shall not be grouped or clustered so as to create segregated pockets within the housing community (See paragraph 9.2 of this Section).

1.2.4 SITE AND SITE RESTRICTIONS

The site is described on the RFP drawings included as part of this solicitation. Space for housing development is restricted by adjoining housing, an existing park with green space to the south and other site restrictions. Housing units shall not be constructed outside of project limits, shall not be constructed in the 100-year floodplain, shall not be constructed within the 70 – 75 DNL noise contour (see paragraph 9.6 in this section).

1.2.5 DEMOLITION

This project consists of 2 stages of demolition. Also, see Part 4 of this section for specific demolition scope.

1.2.5.1 Stage 1 Demolition

Stage 1 (also referred to as the project site) includes the removal and replacement of existing utilities, streets and other infrastructure within the identified boundaries of the new housing unit construction area. Stage 1 demolition also includes the removal of a single duplex building (addresses: 124 and 126 Washington Street) and its associated foundation. See drawing sheet CU101 for Stage 1 demolition area.

1.2.5.2 Stage 2 Demolition

Stage 2 includes the demolition of 82 existing housing units (41 duplex buildings) and associated foundations and other infrastructure within the boundaries of the Stage 2 demolition area. See drawing sheet CD101 for Stage 2 demolition area. Stage 2 demolition will not be permitted to start until all new housing units within the project site have been accepted by the Government.

The housing units within the Stage 2 demolition area have been surveyed for hazardous materials. The Contractor shall remove and dispose of all hazardous and regulated materials as required. The Contractor shall be responsible for locating appropriate disposal facilities. No waste areas exist on the Base. See Appendix 2 for hazardous materials survey. Also see Sections 13280, 13281, and 13284 for abatement and other requirements dealing with hazardous and regulated materials.

1.2.6 DESIGN FREEDOM

Requirements stated in this RFP are minimums except where GSF and NSF maximum sizes are identified for the housing unit floor areas, number of housing units per building, and the interior/exterior bulk storage spaces (or other areas indicated as maximum). Innovative, creative, or cost-saving proposals which meet or exceed these minimum requirements (maximum requirements cannot be exceeded) are encouraged and will be rated accordingly. Deviations from space and adjacency requirements are discouraged unless the changes result in improvement to the facilities. Award of this project will be made to the offeror whose overall proposal provides the best value to the Government. Technical proposals will be evaluated by the Government in accordance with an evaluation system (see Section 00110) which considers the technical merit of housing unit design, site design, housing unit engineering, site engineering, etc.

1.2.6.1 Housing (or Living) Units

All housing units shall be built in either duplex configuration or detached configuration as listed in Table 1-1 of this section. A duplex is defined as two housing units joined together by a common party wall and each housing unit entered separately and directly from the exterior. A detached configuration is defined as a stand-alone building housing a single family. All units shall be single story.

a) Site built housing units are required for this project. Factory built and manufactured housing units are prohibited. Site built housing is defined as a residential building or housing unit wholly or substantially constructed at the site.

b) Design Quality Objective: The objectives are to obtain housing structures and complimentary site development within the funds available and to optimize livability. Design quality is achieved through the optimization of interior planning, integration of housing structures to the site, and balancing architectural attractiveness, variety, function, and design for low-cost maintenance and operation. Items included by the offeror which exceed the RFP minimum requirements will affect positively the rating of the presentation.

c) Design of this project shall incorporate, to the fullest extents possible, the design guidance and criteria contained in the Air Force Family Housing Guide (Dec. 1995) and in the Dyess Design Technical Letter Number 2 (Jun. 1998). See paragraph 2.3 for document references.

d) Ecological Benefits: Offerors are encouraged to consider products and materials which will afford initial and/or long range reductions in the consumption of water, fuels, electrical power,

raw materials, or accumulation of waste matter. The Air Force continues to emphasize environmental quality and conservation of energy and resources.

e) Energy and Resources Conserving Features: Public Law 102-486, Executive Order 12902, and Federal Regulations 10 CFR 435, require Federal buildings to be designed and constructed to reduce energy consumption in a life-cycle, cost-effective manner using renewable energy sources when economical. Products designed to conserve energy and resources by controlling the amounts of consumed energy or by operating at increased efficiencies should be considered. Minimum requirements for this project are high-efficiency central heating and air conditioning units, energy efficient appliances, energy efficient water heater, water flow-limiting plumbing fixtures, and double glazing for all glazed openings. Refer to paragraph 13.2 of Section 01000 for additional information.

1.3 BETTERMENTS {AM#0003} _____

The tables below depict the betterments {AM#0003} _____ for the project. Betterments are defined as items which are desired by the Government to be included in the base bid as funds allow to remain within the Construction Cost Limitation. Each betterment incorporated into the project will provide for a more favorable technical evaluation. Table 1-2 lists the betterments desired in order of priority. {AM#0003} _____. {AM#0003} With exceptions as noted in paragraph 1.1, Options are for work anticipated to be in excess of available funding limitations and are awarded solely at the discretion of the Government.

Table 1-2
Summary Of Desired Betterments

Betterment Priority Number	Betterment Item	Base Bid
1	Increase Net Floor Area closer to the maximum authorized in Table 1-1 of Section 01000	Requirements as shown in Table 1-1 of Section 01000
2	Detached construction for 3-BR units	Duplex construction for {AM#0003}___ 3-BR units.
3	R2X carpeting by Philadelphia Carpets	Carpet as specified in Paragraph 9.10 of Section 01000
4	Half bath in 2 BR units (in addition to 1 full bath)	One full bath in 2 BR units
5	Ceramic Tile flooring (with emphasis on entrance) and wall finish in bathroom	VCT flooring and painted gypboard bathroom wall finish
6	Tilt-wash single-hung windows	Standard single-hung windows
7	Built-in shelves in garage	No built-in shelves in garage
8	Concrete walking path	No concrete walking path
9	Recycled plastics in lieu of cedar wood for privacy fence	Cedar wood privacy fence with metal posts
10	Community covered shelter with charcoal grill	No covered shelter or grill
11	300 lb. Architectural shingles	3-tab, 25 year warranty shingles
12	Copper roof valleys	Galvanized metal valleys
13	3/4-inch plywood roof decking	5/8-inch plywood roof decking
14	Larger caliper trees	Trees as specified in Part 7 of Section 01000

15	Tornado Room (secure interior room for congregation with no windows)	No Tornado Room

NOTES:

1. Offeror shall clearly indicate in technical proposal all work included in base bid and work included as a betterment.
2. Offeror shall highlight and list betterments in plans and narrative.
3. Offerors are cautioned that exceeding the Construction Cost Limitation set forth in this solicitation may result in the Offeror being rejected due to lack of funds for award.

1.4 RECYCLED/RECYCLABLE MATERIALS

Design and Construction shall comply with Executive Order 13101, Greening of the Government Through Waste Prevention, Recycling, and Federal Acquisition, requiring use of recycled ("environmentally preferable") materials. Included within this EO is the responsibility to make wise choices relative to life cycle cost, recyclables, and waste prevention.

1.5 EXAMPLES/QUALITY

Building systems, materials, and methods specified herein are defined as the minimum salient features desired and preferred for a level of quality, standards and compatibility throughout. Any appropriate building systems, operational equipment, materials, and methods that meet or exceed the standards and compatibility requirements set forth in the RFP may be proposed by the Design/Build Team. These shall be clearly specified within the proposal as "betterments" on the CONSTRUCTION MATERIALS, PRODUCTS, EQUIPMENT AND SYSTEMS work sheets attached to SECTION 00110, PROPOSAL SUBMISSION AND EVALUATION.

PART 2 – CRITERIA REFERENCES

INDEX

2 CRITERIA REFERENCES

Criteria to be used for design and construction shall be taken from the most current references at the date of issue of the RFP. Administrative, contractual, and procedural features of the contract shall be as described in other sections of the RFP. Referenced codes and standards herein and those listed below are minimum acceptable criteria.

2.1 LOCAL STANDARDS

The following specifications, standards, bulletins, and handbooks form a part of this document to the extent specified herein.

Dyess Design Technical Letter Number 2, Jun. 1998 - See Appendix 3.

2.2 FEDERAL LAWS

The Federal laws and regulations listed in Table 2-1 form a part of this document. They are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325 (202) 783-3238.

TABLE 2-1 - FEDERAL LAWS & REGULATIONS

CFR/USC No.	Description
P.L. 102-486	Energy Policy Act of 1992
10 CFR 430	National Appliance Energy Conservation Act (NAECA)
10 CFR 435	Voluntary Performance Standards for New Commercial and Multi-Family High Rise Residential Buildings; Mandatory for Federal Buildings.
10 CFR 436	Methodology and Procedures for Life Cycle Cost Analyses
16 CFR 1630	Standard for Surface Flammability of Carpet and Rugs
49 CFR 192	Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards
10 USC 2826	Public Law 97-214, Military Construction and Military Family Housing
24 USC 5301	Public Law 93-383, Community Development
42 USC 4321-4361	National Environmental Policy Act (NEPA)
MIL HDBK 1008C	Fire Administration Authorization Act of 1992

TABLE 2-1 - FEDERAL LAWS & REGULATIONS	
CFR/USC No.	**Description**
42 USC 4901-4918 & 49 USC 1431	**Noise Control Act of 1972**
42 USC 5401-5426	**Federal Manufactured Housing Construction and Safety Standards Act of 1974**
Army Regulation 200-1	**Environmental Protection and Enhancement, May 1990**
E.O. 12902	**Energy Efficiency and Water Conservation in Federal Facilities**

2.3 FEDERAL HANDBOOKS AND STANDARDS

The specifications listed form a part of this document to the extent specified herein. Federal Standard 795, Uniform Federal Accessibility Standards, and federal specifications are available from the Commanding Officer, Naval Publications and Forms Center, ATTENTION: NPODS, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

a) HANDBOOKS

AFI — Air Force Instruction 32-6002, Family Housing Planning, Programming, Design, and Construction (See Appendices).

ETL 00-6 — Air Force Carpet Standard (http://www.afcesa.af.mil/Publications/ETLs/ETL00-6Final.pdf)

MIL HDBK 1008C (http://www.hnd.usace.army.mil/techinfo/milhbk.htm)

Air Force Family Housing Guide, Dec. 1995 (http://www.afcee.brooks.af.mil/dc/dch/mfhguide/guide.asp).

ACC Architectural and Interior Design Standards, Jan. 2002 (See Appendices).

Dyess Design Technical Letter Number 2, Jun. 1998 (See Appendices).

Southwestern Division, Design Criteria Architectural and Engineering Instructions Manual (AEIM), October 2000 (http://www.swf.usace.army.mil/eandc/ec-a/2000aeim.html)

b) STANDARDS

FED-STD-795 — Uniform Federal Accessibility Standards.

ADAAG — Americans with Disabilities Act Accessibility Guidelines.

2.4 ADDITIONAL GOVERNMENT DOCUMENTS AND PUBLICATIONS

The following Government documents and publications form a part of this document to the extent specified herein:

a) NBS Handbook 135, Life-Cycle Costing Manual for the Federal Energy Management Program. Available from the National Institute of Science and Technology, formerly National Bureau of Standards (NBS).

b) The following United States Environmental Protection Agency criteria are available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650: EPA/600/8-88/087, Radon-Resistant Residential New Construction; EPA/625/5-88/024, Application of Radon Reduction Methods; and EPA/625/5-87/019, Radon Reduction Techniques for Detached Houses.

2.5 NON-GOVERNMENT PUBLICATIONS

The following publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are Department of Defense (DoD) adopted are those listed in the Department of Defense Index of Specifications and Standards (DODISS).

a) Air-Conditioning and Refrigeration Institute (ARI). Information listed below is available from ARI, 1501 Wilson Boulevard, Suite 600, Arlington, VA 22209, (703) 524-8800: (Unnumbered), Directory of Certified Unitary Air Conditioners, Unitary Heat Pumps and Sound Rated Outdoor Unitary Equipment; ARI 210/240, Unitary Air Conditioning and Air-Source Heat Pump Equipment.

b) Air Movement and Control Association, Inc. (AMCA). AMCA 210, Laboratory Methods of Testing Fans For Rating, is available from AMCA, 30 West University Drive, Arlington Heights, IL 60004, (312) 394-0150.

c) Home Ventilating Institute (HVI): a Division of AMCA. Copies of HVI publications are available at the following Web Site: http://www.lakehurst.com/hvihome.html or at (847) 394-0150.

d) American Architectural Manufacturers Association (AAMA). AAMA specifications shown in Table 2-2 are available from AAMA, 2700 River Road, Suite 118, Des Plaines, IL 60018, (312) 699-7310.

TABLE 2-2 - AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION SPECIFICATIONS	
No.	**Description**
AAMA 101	**Voluntary Specification for Aluminum Prime Windows and Sliding Glass Doors**
AAMA 101V	**Voluntary Specification for Poly (Vinyl Chloride) (PVC) Prime Windows and Sliding Glass Doors**
AAMA 1002.10	**Voluntary Specifications for Aluminum Insulating Storm Products for Windows and Sliding Glass Doors**
AAMA 1402	**Standard Specifications for Aluminum Siding, Soffit, and Fascia**

e) (American Gas Association (AGA). Standards and specifications are available from AGA, 1515 Wilson Boulevard, Arlington, VA 22209, (703) 841-8400.

f) American National Standards Institute, Inc. (ANSI). Copies of the standards listed in Table 2-3 are available from ANSI, 1430 Broadway, New York, NY 10018, (212) 354-3300.

TABLE 2-3 - AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARDS

Std. No.	Std. Description
A112.19.1	Enameled Cast Iron Plumbing Fixtures
A112.19.2	Vitreous China Plumbing Fixtures
A112.19.3	Stainless Steel Plumbing Fixtures (Designed for Residential Use)
A112.19.4	Porcelain Enameled Formed Steel Plumbing Fixtures
A112.19.5	Trim for Water-Closet Bowls, Tanks, and Urinals (Dimensional Standards) (DoD Adopted)
A161.1	Recommended Construction and Performance Standards for Kitchen and Vanity Cabinets
B16.5	Steel Pipe Flanges and Flanged Fittings
B16.22	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings (DoD Adopted)
B16.26	Cast Copper Alloy Fittings for Flared Copper Tubes
B31.8	Gas Transmission and Distribution Piping Systems
C2	National Electrical Safety Code
ANSI C105 AWWA A21.5	Polyethylene Encasement for Ductile-Iron Pipe Systems
Z21.10.1	Water Heaters, Gas, Volume I, Storage Type, 75,000 BTUH Input or Less
Z21.45	Flexible Connectors of Other Than All-Metal Construction for Gas Appliances
Z60.1	American Standard for Nursery Stock
Z124.1	Plastic Bathtub Units
Z124.2	Plastic Shower Receptors and Shower Stalls

g) American Plywood Association. APA B840-K-88, 303 Siding Manufacturing Specifications, are available from the American Plywood Association, P.O. Box 11700, Tacoma, WA 98411, (206) 565-6600.

h) American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) documents, listed in Table 2-4, are available from ASHRAE, 1791 Tullie Circle, N.E., Atlanta, GA 30329, (404) 636-8400.

TABLE 2-4 - AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS (ASHRAE)	
No.	**Description**
ASHRAE	**2001 Handbook of Fundamentals**
ASHRAE	**Residential Cooling Load Calculations**
ASHRAE 52	**Method of Testing Air Cleaning Devices used in General Ventilation for Removing Particulate Matter**
ASHRAE 111	**Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air Conditioning, and Refrigeration Systems**
ASHRAE	**2002 Refrigeration Handbook**
ASHRAE	**2000 HVAC Systems and Equipment Handbook**
ASHRAE	**1999 HVAC Applications Handbooks**
ASHRAE 62-1999	**Ventilation For Acceptable Indoor Air Quality**
ASHRAE 90.2-2001	**Energy Efficient Design of Low-Rise Residential Buildings**

i) American Society of Mechanical Engineers (ASME). ASME B16.11, Forged Fittings, Socket-Welding and Threaded is available from ASME, 345 East 47th Street, New York, NY 10017, (212) 705-7722.

j) American Society of Sanitary Engineers (ASSE). ASSE 1006, Residential Use (Household) Dishwashers, and ASSE 1008, Food Waste Disposal Units, Household, are available from ASSE, P.O. Box 40362, Bay Village, OH 44140.

k) American Society for Testing and Materials (ASTM). ASTM specifications listed in Table 2-5 are available from ASTM, 1916 Race Street, Philadelphia, PA 19103, (215) 299-5400.

TABLE 2-5 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS	
Spec. No.	**Spec. Description**
A53	**Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless**
A526	**Specification for Steel Sheet Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality**

TABLE 2-5 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS

Spec. No.	Spec. Description
	(DoD Adopted)
B117	**Method of Salt Spray (Fog) Testing (DoD Adopted)**
C90	**Specification for Hollow Load-Bearing Concrete Masonry Units (DoD Adopted)**
C216	**Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) (DoD Adopted)**

TABLE 2-5 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS

Spec. No.	Spec. Description
D3676	Rubber Cellular Cushion Used for Carpet or Rug Underlay
D1557	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft 2700kN-m/m)
D1785	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120 (DoD Adopted)
D2513	Standard Specification for Thermoplastic Gas Pressure Piping (DoD Adopted)
D2683	Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing (DoD Adopted)
D2846	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot and Cold-Water Distribution Systems (DoD Adopted)
D3018	Specification for Class A Asphalt Shingles Surfaced with Mineral Granules (DoD Adopted)
E84	Standard Test Method for Surface Burning Characteristics of Building Materials (DoD Adopted)
E90	Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions (DoD Adopted))
E108	Standard Methods of Fire Tests of Roof Coverings
E119	Standard Methods of Fire Tests of Building Construction and Materials
E162	Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source (DoD Adopted)
E283	Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors
E330	Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
E336	Standard Test Method for Measurement of Airborne Sound Insulation in Buildings
E547	Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential
E648	Critical Radiant Flux of Floor-Covering Systems Using a Radiant Energy Source

TABLE 2-5 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS

Spec. No.	Spec. Description
E779	**Measuring Air Leakage by the Pressurization Method**
E1007	**Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures**
E1465	**Standard Guide for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings**
F1292	**Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment**
E1423	**Standard Practice for Determining the Steady State Thermal Transmittance of Fenestration Systems**
F1487-93	**Standard Consumer Safety Performance Specification for Playground Equipment for Public Use**
G90	**Standard Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight**

l) American Water Works Association, Inc. (AWWA). Specifications listed below are available from AWWA, 6666 Quincy Ave., Denver, CO 80235, (303) 794-7711: AWWA C500, Gate Valves for Water and Sewerage Systems (DoD adopted); AWWA C502, Dry-Barrel Fire Hydrants; and AWWA C503, Wet-Barrel Fire Hydrants.

m) Associated Air Balance Council (AABC). AABC MN-1, National Standards for Total System Balance, is available from AABC, 1518 K Street N.W., Washington, DC 20005.

n) Association of Textile Chemists and Colorists (AATCC). AATCC 134, Electrostatic Propensity of Carpets, is available from AATCC, P.O. Box 12215, Research Triangle Park, NC 27709, (919) 549-8141.

o) Builders Hardware Manufacturers Association, Inc. (BHMA). Specifications shown in Table 2-6 are available from the Builders Hardware Manufacturers Association, Inc. (BHMA), 60 East 42nd Street, Room 511, New York, NY 10165, (212) 661-4261.

TABLE 2-6 - BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA) SPECIFICATIONS

No.	Description
ANSI/BHMA A156.1	**Butts and Hinges**
ANSI/BHMA A156.4	**Door Controls, Closers**
ANSI/BHMA A156.5	**Auxiliary Locks and Associated Products**
ANSI/BHMA A156.2	**Bored and Preassembled Locks and Latches**
ANSI/BHMA A156.12	**Interconnected Locks and Latches**
ANSI/BHMA A156-5	**Interchangeable Cores**

p) Building Officials & Code Administrators International, Inc. (BOCA). The BOCA National Building Code is available from Building Officials & Code Administrators International, Inc., 4051 W. Flossmoor Rd., Country Club Hills, IL 60478-5795. Telephone: (708) 799-2300.

q) {AM#0003}International Energy Conservation Code (IECC) 2000. This document is available at the following web address: www.icbo.org

r) {AM#0003} International Residential Code (IRC) 2000. This document is available at the following web address: www.icbo.org

s) Electronic Industries Association Telecommunications Industry Association (EIA/TIA). EIA/TIA Standard EIA/TIA-570, is available from Electronic Industries Association, Engineering Department, 2001 Pennsylvania Ave., N.W., Washington, DC 20006. Telephone: (202) 457-4966.

t) Illuminating Engineering Society of North America (IESNA). The IESNA Lighting Handbook, is available from Illuminating Engineering Society of North America, 345 East 47th Street, New York, NY 10017.

u) International Association of Plumbing and Mechanical Officials (IAMPO). The 2000 Uniform Plumbing Code and 2000 Uniform Mechanical Code are available from the International Association of Plumbing and Mechanical Officials (IAMPO) 5032 Alhambra Avenue, Los Angeles, CA 90032 / (213 223-1471).

v) International Conference of Building Officials (ICBO). The 2000 International Building Code is available from the International Conference of Building Officials (ICBO), 5360 South Workman Mill Road, Whittier, CA 90601-2298. Telephone: (310) 699-0541.

w) National Association of Architectural Metal Manufacturers Association (NAAMA). NAAMA Metal Finishes Manual, is available from the National Association of Architectural Metal Manufacturers Association (NAAMA), 600 South Federal Street, Chicago, IL 60605-1842, (312) 922-6222.

x) National Association of Corrosion Engineers (NACE). NACE RP-0286, The Electrical Isolation of Cathodically Protected Pipelines, is available from NACE, P.O. Box 218340, Houston, TX 77218.

y) National Association of Plumbing-Heating-Cooling Contractors (PHCC). The National Standard Plumbing Code is available from National Association of Plumbing-Heating-Cooling Contractors (PHCC), P.O. Box 6808, Falls Church, VA 22046-1148, 1-800-253-4491.

z) National Earthquake Hazard Reduction Program (NEHRP). Provisions for New Buildings and Other Structures.

aa) National Electrical Manufacturers Association (NEMA). NEMA standards listed below are available from the National Electrical Manufacturers Association (NEMA), 2101 L Street, N.W., Washington, DC 20037, (202) 457-8400: NEMA DC 3, Wall-Mounted Room Thermostats; and NEMA WD 1, General Requirements for Wiring Devices.

bb) National Environmental Balancing Bureau (NEBB). NEBB-01, Procedural Standards for Testing-Adjusting-Balancing of Environmental Systems, is available from NEBB, 1385 Picard Drive, Rockville, MD 20850, (301) 977-3698.

cc) National Fenestration Rating Council (NFRC). NFRC 100-91, Procedure for Determining Fenestration Product Thermal Properties, is available from NFRC, 1300 Spring Street, Suite 120, Silver Spring, MD. Telephone: (301) 589-NFRC.

dd) National Fire Protection Association, Inc. (NFPA). NFPA codes listed in Table 2-7 are available from the National Fire Protection Association, Inc. (NFPA), Battery March Park, Quincy, MA 02269. Telephone: (617) 770-3000.

TABLE 2-7 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES

Code No.	Code Description
NFPA 54	**National Fuel Gas Code**
NFPA 70	**National Electrical Code (State Adopted)**
NFPA 72	**National Fire Alarm Code**
NFPA 101	**Life Safety Code**
NFPA 101M	**Alternative Approaches to Life Safety**
NFPA 255	**Method of Test of Surface Burning Characteristics of Building Materials**
NFPA 701	**Standard Methods of Fire Tests for Flame Resistant Textiles and Films**
NFPA 241	**Standard for Safeguarding Construction, Alteration, and Demolition Operations 2000 Edition**
NFPA 51B	**Standard for Fire Prevention During Welding, Cutting, and Other Hot Work" 1999 edition.**

ee) National Sanitation Foundation, 3475 Plymouth Road, P.O. Box 1468, Ann Arbor, MI 48106. Telephone: (313) 769-8010.

ff) National Wood Window and Door Association (NWWDA) standard, NWWDA I.S.2, Standard for Wood Window Units is available from the National Wood Window and Door Association (NWWDA), 205 Touhy Ave., Des Plaines, IL 60018, (312) 299-5200.

gg) Sheet Metal and Air Conditioning Contractors National Association (SMACNA). SMACNA Installation Standards for Residential Heating and Air Conditioning Systems and SMACNA-07, HVAC Systems, Testing, Adjusting, and Balancing, are available from SMACNA, 8224 Old Courthouse Road, Tysons Corner, Vienna, VA 22180.

hh) Southern Building Code Congress International, Inc. The Standard Housing Code is available from Southern Building Code Congress International, Inc., 900 Montclair Road, Birmingham, AL 35213-1206. Telephone: (205) 5921-1853.

ii) Underwriters Laboratories, Inc. (UL) specifications listed in Table 2-8 are available from the Underwriters Laboratories, Inc. (UL), 333 Pfingston Road, Northbrook, IL 60062. Telephone: (312) 272-8800.

TABLE 2-8 - UNDERWRITERS LABORATORIES SPECIFICATIONS

No.	Description (Specs. are DoD Adopted)
UL 174	Water Heaters, Household Electric Storage Tank Type
UL 430	Waste Disposers
UL 507	Electric Fans
UL 555	Fire Dampers
UL 749	Household Dishwashers
UL 858	Household Electric Ranges
UL 900	Test Performance of Air Filter Units

PART 4 – SITE

INDEX

4 SITE

4.1 SITE DEMOLITION

4.1.1 SCOPE

This project consists of 2 stages of demolition. See Section 01001 for phasing requirements.

4.1.1.1 Stage 1 Demolition

Stage 1 (also referred to as the project site) includes the removal and replacement of existing utilities (water, sewer, gas, electric), streets, sidewalks, curbs, driveways and street lighting within the identified boundaries of the new housing unit construction. Stage 1 demolition also includes the removal of a single duplex building (addresses: 124 and 126 Washington Street) and its associated foundation and capping of service utilities back to the mains. The single duplex building to be demolished in this Stage is in the path of the Contractor's designated access route to the project site, therefore a new, temporary gravel surface is required over the site of this demolished duplex building.

The Contractor may keep the existing sanitary sewer mains running north/south along Washington and Virginia streets if the Contractor's site layout accommodates this existing configuration. See drawing sheet CU101 for Stage 1 demolition area.

4.1.1.2 Stage 2 Demolition

Stage 2 includes the demolition of 82 existing housing units (41 duplex buildings), associated foundations, and capping service utilities (water, sewer, gas, electric) back to the mains. See drawing sheet CD101 for Stage 2 demolition area. Housing units identified within this area shall be demolished and removed completely, including foundations. House walks shall be removed in their entirety and driveways shall be removed to the front of curb. Sidewalks in this area shall remain. The Contractor shall retain as many existing trees as practical. All trees left in place shall be protected during the demolition operations.

4.1.1.3 Housing Units to be Demolished

Housing units 124 Washington and 126 Washington shall be demolished during Stage 1. Street addesses of the 82 housing units to be demolished in Stage 2 of the demolition plan shall be as follows:

Dwelling Unit Address	Street Name	Unit Type	Building Floor Plan Type
101	New York	3 BR Duplex	22
103	New York	3 BR Duplex	23L
105	New York	3 BR Duplex	23L
107	New York	3 BR Duplex	23R
109	New York	2 BR Duplex	23R
111	New York	2 BR Duplex	18
113	New York	2 BR Duplex	18
115	New York	3 BR Duplex	23L
117	New York	3 BR Duplex	23L
119	New York	3 BR Duplex	22
121	New York	3 BR Duplex	22
123	New York	3 BR Duplex	23R

Dwelling Unit Address	Street Name	Unit Type	Building Floor Plan Type
125	New York	3 BR Duplex	23R
101	Oklahoma	2 BR Duplex	18
102	Oklahoma	2 BR Duplex	11
103	Oklahoma	2 BR Duplex	14
104	Oklahoma	3 BR Duplex	19
105	Oklahoma	2 BR Duplex	14
106	Oklahoma	3 BR Duplex	19
107	Oklahoma	2 BR Duplex	15R
108	Oklahoma	3 BR Duplex	21
109	Oklahoma	2 BR Duplex	15R
110	Oklahoma	3 BR Duplex	21
111	Oklahoma	2 BR Duplex	15L
112	Oklahoma	3 BR Duplex	19
113	Oklahoma	2 BR Duplex	15L
114	Oklahoma	3 BR Duplex	19
115	Oklahoma	2 BR Duplex	14
116	Oklahoma	3 BR Duplex	20L
117	Oklahoma	2 BR Duplex	14
118	Oklahoma	3 BR Duplex	20L
119	Oklahoma	3 BR Duplex	23L
120	Oklahoma	3 BR Duplex	20R
121	Oklahoma	3 BR Duplex	23L
122	Oklahoma	3 BR Duplex	20R
123	Oklahoma	3 BR Duplex	24
125	Oklahoma	3 BR Duplex	24
127	Oklahoma	3 BR Duplex	23R
128	Oklahoma	2 BR Duplex	17
129	Oklahoma	3 BR Duplex	23R
130	Oklahoma	2 BR Duplex	17
131	Oklahoma	2 BR Duplex	18
132	Oklahoma	3 BR Duplex	20L
133	Oklahoma	2 BR Duplex	18
134	Oklahoma	3 BR Duplex	20L
135	Oklahoma	3 BR Duplex	22
136	Oklahoma	2 BR Duplex	11
137	Oklahoma	3 BR Duplex	22
138	Oklahoma	2 BR Duplex	11
139	Oklahoma	2 BR Duplex	15L
140	Oklahoma	3 BR Duplex	21
141	Oklahoma	2 BR Duplex	15L
142	Oklahoma	3 BR Duplex	21
143	Oklahoma	3 BR Duplex	23R
144	Oklahoma	2 BR Duplex	17
145	Oklahoma	3 BR Duplex	23R

Dwelling Unit Address	Street Name	Unit Type	Building Floor Plan Type
146	Oklahoma	2 BR Duplex	17
147	Oklahoma	2 BR Duplex	18
143	Virginia	3 BR Duplex	24
145	Virginia	3 BR Duplex	24
146	Virginia	3 BR Duplex	22
147	Virginia	3 BR Duplex	23R
148	Virginia	2 BR Duplex	11
149	Virginia	3 BR Duplex	23R
151	Virginia	2 BR Duplex	11
152	Virginia	2 BR Duplex	18
153	Virginia	2 BR Duplex	11
155	Virginia	3 BR Duplex	23L
157	Virginia	3 BR Duplex	23L
159	Virginia	3 BR Duplex	24
161	Virginia	3 BR Duplex	24
124	Washington	2 BR Duplex	13
126	Washington	2 BR Duplex	13
134	Washington	3 BR Duplex	20L
136	Washington	3 BR Duplex	20L
138	Washington	3 BR Duplex	21
140	Washington	3 BR Duplex	21
141	Washington	2 BR Duplex	18
142	Washington	3 BR Duplex	20R
144	Washington	3 BR Duplex	20R
146	Washington	3 BR Duplex	19
148	Washington	3 BR Duplex	19
150	Washington	3 BR Duplex	20L
152	Washington	3 BR Duplex	20L

Items Salvaged by the Using Services: The Government will remove and store all items desired for salvage prior to the Contractor taking possession of buildings to be demolished. Dyess AFB intends to salvage the following items:

a) 35 HVAC systems to include furnace with internal cooling system and exterior condensing units. Ductwork and other parts of the system will remain.
b) 20 refrigerators.
c) 20 ranges with stoves.
d) 40 ceiling fans.

All remaining items on the project site will become the property of the Contractor.

4.1.1.4 Phasing of Demolition

The demolition scope of work will include 2 stages, as described above in 4.1.1. Stage 1 demolition is to prepare for new construction and must begin upon award. Stage 2 will be phased in accordance with Section 01001.

4.1.2 UTILITIES REMOVAL AND CUT-OFF

For Stage 1 of the demolition plan, existing utility lines will be removed and replaced as indicated on the drawings provided. Existing overhead electrical distribution lines within the Stage 1 project area (shown on drawing sheet CU106) will be removed and replaced with an underground distribution system. Cable television (CATV) and telephone service equipment will also be removed. Disruptions in utility services to the remaining existing houses shall be in accordance with Section 01363 of this RFP. Contractor is responsible for coordinating actions prior to work and ensuring that water, sewer, storm and gas lines do not leak after work is completed.

For Stage 2 of the demolition plan, the existing utility connections into the family housing units being demolished shall be disconnected from the service mains serving the housing unit and removed. Electrical service to each housing unit shall be terminated. Overhead electrical distribution lines and poles shall be removed, except when they serve occupied units. Streets and light poles will also remain. Disruptions in utility services shall be in accordance with Section 01363 of this RFP. Contractor is responsible for coordinating actions prior to work and insuring that water, sewer, and gas lines do not leak after work is completed.

4.1.3 PAVEMENT REMOVAL/UTILITY PROTECTION

No open trenching will be allowed in existing or new roads. When open trench methods are used on sidewalks, they shall be sawcut, removed and replaced as required to construct the utility. Portions of walks and concrete elements requiring removal shall be removed to the nearest contraction joint.

4.1.4 UTILITY INTERFERENCE

All existing utilities serving existing housing units shall remain in service except for outages as specified in Section 01363. All underground utilities from field data and surveys, site investigations, and digging permit locates, shall be marked within and adjacent to areas of the work. All work areas shall be investigated with detection devices for cables and pipelines, to confirm locations, identify unknown utilities, and establish depths. All active underground utilities potentially disturbed within both phases of work shall be found by hand digging prior to mechanical trenching or excavating in the vicinity. Detection devices shall be on-site at all times.

4.2 EXISTING SITE CONDITIONS

4.2.1 GOVERNMENT PROVIDED INFORMATION

Government provided plans and the Geotechnical report (see Appendix 1) are provided as information to assist the Contractor in preparing the proposal. Any errors identified shall be brought to the attention of the Contracting Officer immediately for resolution and direction. The Contractor shall take all professionally prudent and reasonable actions to verify the accuracy of the data provided. During design and construction, the contractor shall be responsible for obtaining any additional data necessary for the execution of this project.

4.2.2 ENGINEERING SURVEY

A topographical survey of the project site is provided with this RFP. It should be noted that this survey was conducted prior to the housing units on this site being demolished. Recently, the Government has removed these housing units from the project site. The survey shall be used by the Contractor to prepare his design drawings. {AM#0003} No new survey is required of the demolished area. Once construction of site infrastructure and new housing units is complete, Contractor shall provide an updated survey of the project site. All new utilities shall be surveyed for location prior to backfilling. New utility survey data shall be provided to the Contracting Officer for inclusion into the Dyess AFB database, see Section 01012

SUBMITTALS DURING DESIGN for document requirements. Coordinates of all branch lines and changes in direction shall be documented and provided to the Contracting Officer.

4.2.2.1 Ground Control

The ground control for the new survey shall be developed with accuracy commensurate to support the mapping. The survey will be developed using Texas State Plane Coordinate System, English units in U.S. Survey Feet. The horizontal and vertical control reference datums shall be NAD 83 and NGVD 29 respectively. All final supplied results will be True State Plane at zero elevation. As per reference EM1110-1-1002 (http://www.usace.army.mil/inet/usace-docs/eng-manuals/em1110-1-1002/toc.htm), use the Type G monuments as a guide for any new control set as part of this contract.

4.2.2.2 Coordinate Listing

The horizontal coordinates of all control used or installed shall be provided in tabular form on 8-1/2" X 11" sheets. The coordinate system used shall be indicated and combination factor used shall be shown. Coordinates accomplished in state plane zones shall not be listed in any other system (modified) than true state plane at zero elevation.

4.2.2.3 Reference Ties

Provide descriptions showing at least 3 ties to all monuments set in the field. Approximate directions and a sketch shall illustrate measured distances. Coordinates and appropriate State Plane system designation shall be shown. If field features (trees, posts, etc.) are not available for ties, then witness posts shall be set. Fence posts or carsonite markers are suitable for this purpose. Reference EM 1110-1-1002 Survey Markers and Monumentation for guidance in establishing these monuments.

4.3 SITE PLANNING

4.3.1 GENERAL

4.3.1.1 Phased Housing Replacement

Dyess AFB plans phased replacement of most existing housing in a program spanning approximately 10 years. This FY03 project consists of Phase 3 of this overall program. Contained in the Appendix 7 of this RFP is a proposed Dyess AFB Housing Master Plan. This sketch of the proposed family housing layout is provided only for reference and to convey the overall theme the Government would like to achieve for the Base housing area. Also provided is an enlarged sketch of the project site for the new Phase III family housing units. The objective of the site plan included in Appendix 7 was to add green space to the existing layout, minimize traffic on residential streets and provide essentially the same number of housing units currently sited there. While some improvement was achieved, site density is fixed and multistory construction denser than duplex construction is not viewed as a viable tradeoff to achieve ideal clustering and green space possible on a clean site with generous space availability. Offerors are encouraged to improve on the site plan presented.

It will be the responsibility of the bidders responding to this RFP to specifically site the new housing, new roads and other infrastructure as specified in this document. A major site-planning objective is to ensure an interesting, attractive, livable residential environment and to utilize the potential advantages of the site. Housing unit arrangements should be informal and imaginative with setbacks and orientation to provide for the best view, privacy, and variety. The proper grouping of units will provide natural or inherent backyard screening, separation of pedestrian and vehicular traffic, and natural open spaces.

4.3.2 LAND USE

Design plans shall reflect planning objectives outlined in the Air Force Family Housing Guide, dated December 1995. No new housing units shall be constructed in the 100-year flood plain. It is noted that the project site has limitations, however site planning shall, to the fullest extent practical, incorporate the following objectives:

1) Provide adequate infrastructure. These systems include electrical power, water supply, natural gas, sewage/waste disposal, storm water management systems, television/cable TV, and roads and accessibility routes.
2) Use residential building blocks to create neighborhood identity. The housing area plan should employ the principle of a spatial "hierarchy" to give shape to the community and to achieve a sense of local identification for residents.
3) Strengthen the neighborhood with efficient traffic patterns. Planning of local streets and collector streets should provide safe, convenient access to and from the housing units and the neighborhood.
4) Avoid creating green space between housing unit backyards. Dyess AFB desires a common fence between backyards.
5) Use environmentally sensitive landscape design to enhance the environment. Landscape design shall include the use of plant species that fit naturally into the environment and can minimize maintenance demands. Plant materials are to be selected from the approved Xeroscape List provided in Appendix 10 of this RFP. The landscape plan for the project site should provide added privacy for residents by screening private areas from public view.

4.3.3 NOISE

See Section 9-6 for noise mitigating requirements.

4.3.4 HOUSING UNIT GROUPING

Variety in groupings, arrangements, and siting configurations of housing units is encouraged to provide compatible and functional residential layouts and streetscapes. Building arrangements should be informal and imaginative with setbacks and orientation to provide for the best view, privacy, and variety. The proper grouping of housing units will provide natural or inherent backyard screening, separation of pedestrian and vehicular traffic, play lots, and natural open spaces. The layout should reflect simplicity of design and provide a visual sense of community.

4.3.5 HOUSING UNIT VARIATION

Housing unit variation shall afford distinctly different exterior appearances between the building types (2 BR duplex, 3 BR duplex and 3 BR detached). Additionally, each building type shall have a minimum of two distinct exterior frontages designed. It is not required that interior floor plans within each building type vary with frontage variations. Housing units shall also vary in color and siting. A reverse floor plan (mirror-image), although an acceptable means of creating variety, shall not constitute a housing unit exterior variation. Examples of floor plans and elevations are provided for reference in Appendix 7. These examples are provided for reference and not to be considered mandated plans, but rather to convey the architectural theme the Government wishes to achieve for this housing project.

4.3.6 HOUSING UNIT ORIENTATION

Housing units shall be oriented in accordance with good energy practices to the maximum extent practical. The purpose of proper orientation is to expose a minimum surface area to direct solar gain.

4.3.7 HOUSING UNIT SET BACKS AND SPACING

Clearances between and adjacent to buildings must consider requirements for fire protection, safety, privacy, and emergency access in addition to the following minimum criteria. Setbacks stated below are mandatory except where superseded by more stringent requirements stated elsewhere in this RFP.

4.3.7.1 Minimum Setbacks

Table 4-1
Minimum Setback Distances

Feature	Criteria
Front setback of unit from back of curb	25ft.
Front to front of building	80ft.
Minimum separation between adjacent duplexes or detached units:	
Between bedrooms	20 ft.
Between garage and bedrooms	20 ft.
Between garages	15 ft.
Minimum distance from garage to street, from back of curb:	
Garage front to curb	25 ft.
Garage side or back to curb	15 ft.
Driveway car space length measured from garage to back of sidewalk (minimum):	
Single car space	25 ft.
Stand Off Distance	
Distance from any housing unit to installation boundary fence	82 ft.

4.3.8 SITE SCOPE

This project consists of the demolition of 84 existing housing units and the construction of 85 new housing units and associated infrastructure within the funds available. Imaginative site design is encouraged, however, the site boundaries and project composition are fixed. The scope shall be as indicated in this RFP and shall, to the extents allowed by site limitations, follow the guidance provided in the Air Force Family Housing Guide. See paragraph in this section entitled "LAND USE". All new construction is located entirely within the limits of Government-controlled lands. Within the boundaries of the project site the Contractor's design documents shall include removal and replacement of streets, curbs and gutters, sidewalks, utility systems, and street lighting. Design documents shall also include new grading, storm drainage, landscaping, and other work as necessary to support a fully functional housing area.

4.3.8.1 Staging Area

The location of the Contractor's staging and storage area shall be as shown on the drawings. This area is approximately 5 acres. Contractors parking areas shall be located within the staging area. Staging area shall be returned to its original condition upon completion of all construction required under this contract.

4.3.8.2 Contractors Access Route

The Contractor’s access route from the designated Staging Area to the project site shall be as shown on the drawings provided with this RFP. The single duplex building to be demolished in Stage 1 is currently in the path of the this access route.

4.3.8.3 Curb and Gutter

Streets shall be provided with concrete barrier curbs and gutters. Minimum curb radii at intersections shall be 20 feet. Curbs shall be depressed at entrances to driveways with gradients providing positive drainage (no ponding). Curb and gutter shall be reinforced as shown in the Southwestern Division AEIM (October 2000).

4.3.8.4 Streets

See Section 6.2 Paving.

4.3.8.5 Driveways

Provide reinforced, concrete driveways with a minimum width of 12 feet and minimum length of 25 feet, exclusive of the sidewalk. Driveways shall slope down from the garage at a grade not greater than 10 percent. See Geotechnical Report for minimum paving requirements.

4.3.8.6 Off Street Parking

As a minimum, provide off-street parking at a rate of 2 spaces per housing unit. Garages count as one space regardless of garage size.

4.3.8.7 Sidewalks

4.3.8.7.1 Sidewalk Repair

Where new or temporary utilities will be installed using open trench methods, existing sidewalks shall be removed to the nearest joint and replaced to original thickness and cross section. See Geotechnical Report for minimum requirements.

4.3.8.7.2 New Sidewalk

Provide continuous network of new concrete sidewalks along sides of all streets where housing is adjacent to the street. Provide a 4-foot set back from the back of the curb. Sidewalks and curb and gutter will be reinforced as shown in the Southwestern Division AEIM. Sidewalks shall be a minimum of 4 feet wide. Provide one walk to the garage and one walk to the street front sidewalk from the main entry. The walk to the street sidewalk from the entry should be separate from the driveway. Walks accessing handicapped entrances shall meet the requirements of the American Disability Act with respect to width and grade. Curb cuts shall be provided for handicapped accessibility at intersections of drives and walks. Transverse contraction joint spacing shall be 4 feet for walks that are 4 feet wide. Longitudinal contraction joints shall be constructed in sidewalk widths 8 feet and greater. Expansion joints in concrete sidewalks shall be sealed with cold-applied sealant, which is stone or gray in color. Expansion joint spacing shall not exceed 30 feet.

4.3.8.8 Traffic Control and Street Signs

Street and traffic control signs and installation shall be provided by the Contractor at all street intersections and shall conform to requirements of ANSI D6.1 Manual on Uniform Traffic Control Devices for Streets and Highways. Street names and Dyess AFB logo for signs will be provided to the Contractor by the Contracting Officer.

4.3.8.9 Backyard Privacy Fence

Provide a 6-foot high fence in the backyards of all housing units to serve as an enclosed privacy screen. Fence shall function as a visual barrier between adjacent units. Common fences between backyards of

housing units are desired by Dyess AFB to avoid maintenance of any green space created behind housing units. The fence shall be constructed of cedar wood members and metal posts. See Table 1-2 for fence material betterment. Chain link fence is prohibited. It is desired that fencing enclose the entire back yards, if funds permit. However, the minimum length of fencing required per housing unit shall be 110 linear feet. The Offeror shall include the quantity of fencing included in the technical proposal in the Price and Proposal Schedule. A minimum of one (1) pedestrian fence gate will be provided on the front (garage side) of the fence enclosure. The Price and Proposal Schedule includes a unit price item for fencing, exclusive of the fence gate. (see Section 00010).

4.3.8.10 Patio

Each family unit shall have a reinforced, concrete patio with minimum dimensions as specified in {AM#0003} Table 9-3, Section 01000. For additional patio requirements, see PART 9 Section 01000.

4.3.8.11 Recreation / Common Areas

4.3.8.11.1 Children's Outdoor Play Areas

The existing play area just south of the project site between Mississippi Street and Virginia Street will remain and may be utilized by future tenants within the project site. Additionally, there is an existing play lot within the project site located approximately at the corner of Pennsylvania Street and Virginia Street (see Drawings provided with this RFP). The Contractor may use this existing play lot, if possible, however it may not substitute for the new required play lot described below. Also, play equipment from this existing play lot shall not be used in the required new play lot.

A minimum of one new play lot shall be incorporated into the overall project site layout. A second new play lot, identical in size and features to the required new play lot, is identified as an Option (See Price and Proposal Schedule). A new play lot shall be a minimum of 3,500 square feet in area. New play lot(s) shall, at a minimum contain play equipment for two age groups of children. See paragraph in this section entitled "PLAY LOT" for detailed requirements.

4.3.8.11.2 Child Safety and Accessibility

a) New play lot(s) shall be accessible to children and adults with disabilities. In addition to wheelchair users, the needs of children and adults who walk with canes, walkers, or crutches; who have limited use of the upper body; who have visual or hearing disabilities, or who have developmental disabilities shall be considered. Design criteria based on child dimensions should be used for the proper functioning of the play lot. Every part of a play lot may not be accessible to all its users, but the social experience provided should be accessible to everyone. When more than one play activity of the same type is provided, one shall be accessible. When one activity is provided, it shall be accessible. A diverse play lot has the greatest potential for meeting the needs of all users. Separate play lots for the physically challenged are not acceptable. Integrating all children in the same play setting is emphasized. Standard ADA guidelines for accessible routes, ramps for wheelchair access, transfer points, wheelchair accessible platforms, and accessible stepped platforms should be followed.

b) Age appropriate scale is a term used to describe equipment which will allow safe and successful use by children of a specific chronological age, mental age, and physical ability. Play equipment height and complexity shall not exceed the user's ability. The children's outdoor play lots shall meet age appropriate scale for the age groups that the areas are designed to accommodate.

c) Use Zones. In accordance with ASTM F 1487-01, a Use Zone is a clear, unobstructed area under and around play equipment where a child would be expected to land when jumping or falling from a piece of play equipment. These zones shall be equipped with a playground

safety surface in accordance with ASTM F 1292. Requirements for use zones vary for the age group and for different pieces of equipment. All Use Zones for play equipment shall be shown on the site plan to ensure there is no conflict between play activities on the ground and swinging or jumping from the equipment. Use Zones will not overlap except for spring rocking equipment, balance beams, and playhouses.

d) Playground safety surface. A playground safety surface is constructed of a material that meets the shock absorbency criteria recommended in ASTM F 1292. Playground safety surfaces shall be provided throughout all use zones and under all play equipment as required by the ASTM.

e) The following play events are not appropriate for use in unsupervised play areas; Chain walks, chain or tire climbers, fulcrum seesaws, log roles, May poles, merry-go-rounds, rotating equipment, spring rocking equipment intended for standing, swinging exercise bars, trapeze bars, and whirls.

4.3.8.11.3 Play Lot

Play lot shall be provided with a manufactured play equipment setting. A manufactured play equipment setting includes an age appropriate composite structure consisting of multiple play events for each of the following age groups; 2 to 5 years of age, and 5 to 12 years of age. Other play events include freestanding equipment such as spring rocking equipment, swing, and benches. The swing and spring rockers should be located as a freestanding play event on the perimeter of the play lot. All play equipment shall be located in the play zone with safety surfacing surrounding all structures.

The play lot is an unsupervised play area and does not have a supervised play program for child development. These areas are not part of trained recreation, youth center or child development staff support.

4.3.8.11.4 Play Lot Equipment

a) Age group 2 to 5 play equipment shall be the same as or equal to in play elements, features, quality and guarantee as Little Tikes, Play Builders structure 11.
b) Age group 5 to 12 play equipment shall be the same as or equal to in play elements, features, quality and guarantee as Little Tikes, Kids Builders structure 104.
c) Additional play equipment shall include two swing sets with 2 seats each. One swing set shall be installed near the 2 to 5 age group play structures and have belted tot swing seats. The other swing set shall have belt seats and be located near the 5 to 12 age group play structures.
d) Three spring rockers shall be located near the 2 to 5 age group play structures. Rockers shall include units that will be designed to seat one, two and three children at a time.
e) Four park benches, 6 feet long, with brown colored vinyl clad seat, back and frame made of steel shall be installed around the periphery of the playground and near the sidewalks.
f) Safety surfacing shall be sand, encompassing the entire required play zone except that portion required for handicap access to the transfer station which shall have 3 inch thick, 24 inch by 24 inch square rubber composition safety tiles designed for playground surfacing installed on 4 inch concrete paving. Safety tiles shall connect to the walkway system designed adjacent to the playground area and connecting to the new housing unit areas. Sand surfacing shall be a minimum 12 inches thick, except at the bottom of all slides, stairs, climbers, etc. The sand in these areas shall be increased to a thickness of 18 inches in a 6-foot circle centered on the element.
g) A sand play area, a minimum of 144 square feet in size, shall be incorporated adjacent to the 2 to 5 year old play structure area. Play sand depth shall be a minimum of 18 inches.
h) The play zone containing play structures and the play sand area shall all be encompassed in a containment structure made with recycled plastic timbers. Timbers shall be a minimum 6-inches wide, 6-inches thick, and a minimum of 6-feet in length. Set timbers 12-inches below grade so the tops of the timbers are at grade to reduce tripping hazard. Place timbers a minimum of two timbers in depth, overlap the lengths in half, and secure together with 10-inch spikes set flush with the

timber surfaces. All timbers shall be pre-manufactured with ½-inch radius edges. Radius all cut exposed ends of timbers ½-inch.

i) Colors of all play elements, benches, and timbers shall be approved by the Contracting Officer prior to ordering the equipment.
j) All equipment shall be located and spaced to provide more than adequate safety distances, required open play and fall zones around all equipment.
k) All play lots shall be designed for no more than 2% slope {AM#0003} and no less than 1% slope in any direction.
l) All equipment shall be installed by qualified personnel experienced in assembling this type of equipment. A manufacturer's representative shall thoroughly inspect and approve, in writing, the installation of the play structures prior to use.

4.3.8.11.5 Common Areas

At a minimum, Contractor shall incorporate one new common area within the project site. Common area shall be a newly turfed open area placed immediately adjacent to the new play lot. A second common area is not required adjacent to a second play lot, if that Option is included in the project (See Price and Proposal Schedule). The common area shall measure no less than 7,500 square feet. It shall also be located no less than 50 feet from any residential housing unit. The common area shall slope no more than 3% in any direction. The common area shall be surrounded by a minimum of 4 "Shade Trees", and a minimum of 8 "Specimen Trees", as defined in the approved Xeroscape List provided in Appendix 10 of this RFP.

4.3.8.12 School Bus Shelters

There shall be a minimum of 2 school bus shelters provided within the project site. Shelter locations shall be planned to minimize the walking distance between housing units served by each shelter. The appearance of the shelters shall be consistent with the design of existing shelters in the Dyess AFB housing area. Bus shelters shall have the following minimum dimensions: 4-feet 9-inches deep by 9-feet wide by 8-feet high. The sides and back shall be tempered glass and the roof shall be plastic. A turnout shall also be provided for each new school bus shelter. Turnout shall be of adequate length to allow a school bus to fully pull out of the travel lane. See PART 8 of Section 01000 for street lighting requirements.

4.3.8.13 Walking Path

A reinforced concrete walking path may be provided as a betterment, as indicated in Table 1-2. Design and layout of the path should consider ease of future expansion in subsequent family housing construction phases at Dyess AFB. If provided, the path shall be a minimum of 6 feet wide and shall connect the existing play area, new play lot(s), common area and new housing units within the project site to facilitate pedestrian circulation.

PART 6 – GRADING, PAVING, AND EROSION CONTROL

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6 GRADING, PAVING, AND EROSION CONTROL

6.1 GRADING

6.1.1 GENERAL

The Contractor shall confine all work, except utility upgrades, to the project boundaries indicated on the attached drawings. Drainage system shall be properly coordinated with surrounding properties to insure that runoff does not cause damage to other properties. Ponding anywhere on the site will not be permitted. The number of existing trees to be removed shall be kept to a minimum. No grading shall be done within drip lines of existing trees to be preserved.

6.1.2 ADJUSTMENT OF EXISTING STRUCTURES

All manholes, valve boxes, or inlets of any nature within the project that do not conform to the new finish grade in either surfaced or unsurfaced areas shall be adjusted to the new finish grade. Where inlets, manholes, or valve boxes fall within a surfaced or unpaved roadway or parking, the existing frames and cover shall be removed and replaced with a heavy-duty frame and cover. The structure shall be adjusted as needed to fit the new conditions. All structures shall be of a type suitable for the intended use and shall conform to the requirements of the applicable section of these specifications.

6.1.3 BORROW {AM#0003} _____.

Borrow materials shall be obtained from sources outside the limits of Government-controlled land. The source of borrow material shall be the Contractor's responsibility. The Contractor shall obtain from the owners the right to procure material, shall pay all royalties and other charges involved, and shall bear all the expense of developing the sources, including rights-of-way for hauling.

6.1.4 SIDEWALKS AND CURB AND GUTTER

Concrete walks shall have a maximum transverse grade of 2 percent. Maximum longitudinal walk grade shall be 5 percent. Handicapped accessible walks with a longitudinal slope greater than 5 percent shall be considered a ramp. See FED STD 795 Uniform Federal Accessibility Standards for ramp requirements. The use of steps in walks will be avoided whenever possible. The use of single riser steps is especially discouraged. When steps are unavoidable, they should have at least three risers and will be provided with handrails.

6.1.5 HOUSE FLOOR ELEVATION

Finished floor elevations for buildings shall be a minimum of 8 inches above the highest point of the adjacent outside finished grade, except at all entrances for ADA units {AM#0003}_____. {AM#0003} Entrances at ADA units shall have grade transition up to the living space finished floor elevation at the front entrances.

6.1.6 GRADES AWAY FROM HOUSES

Drainage shall be diverted away from buildings at a 5 percent slope for the first 10 feet away from the building then a slope of at least 2 percent thereafter. Collection swales shall be a minimum distance of 20 feet away from a building.

6.1.7 OVERLOT GRADES

Provide positive drainage for all areas. A minimum 1 percent slope for cohesionless sandy soils is required. A minimum 2 percent slope for cohesive soils or turfed areas is required.

6.1.8 DITCH SLOPES

a. A preferred minimum gradient shall be 0.5 percent with an absolute minimum grade of 0.3 percent for channel flow is required.

b. All new ditches shall be graded at non-erodible slopes or the ditch shall be lined with an appropriate material to prevent erosion. A design storm with a return period of at least 10 years shall be used to determine erodibility of ditches and swales.

6.2 PAVING

It will be the responsibility of the bidders responding to this Design-Build RFP to develop the new housing lot layout and roadways. Guidelines established in the Air Force Family Housing Guide, Chapter 3, should be followed as practical, given the limitations of the site.

Pavement design will be in accordance with the Government provided Preliminary Geotechnical Report (See Appendix 1).

6.3 EROSION AND SEDIMENT CONTROL

The Contractor shall be responsible for selecting and implementing Best Management Practices (BMPs) to minimize pollutants in storm water discharges associated with construction activity at the construction site. The Contractor shall maintain all erosion and sediment measures and other protective measures in effective operating condition. All temporary structural practices shall be removed once the corresponding disturbed drainage area has been permanently stabilized. The project requires coverage under a National Pollution Discharge Elimination System (NPDES) general permit for storm water discharges associated with construction activity. The Contractor shall comply with the requirements in Section 01355 ENVIRONMENTAL PROTECTION. The Contractor is required to prepare the EPA required Pollution Prevention Plan for approval as contained in Section 01421.

6.3.1 TEMPORARY CONSTRUCTION ENTRANCE

Tracking of mud, dirt or other debris from the construction site onto adjacent roads and streets shall be kept to a minimum. A temporary stabilized stone pad shall be constructed at points where vehicular traffic will be leaving the construction site and moving directly onto a paved road or street. It shall extend the full width of the vehicular ingress and egress area and have a minimum length of 70 feet. The entrance shall be maintained in a condition that will prevent tracking or flow of mud onto adjacent roads or streets. If conditions on the site are such that the majority of the mud is not removed by the vehicles traveling over the stone, the tires of the vehicles shall be washed before entering the road or street. Any mud which is tracked onto roads or streets shall be removed at least once daily at the end of the day.

6.3.2 EROSION CONTROL BLANKET

Bottoms and side-slopes of ditches and any other disturbed slopes 1V on 3H or steeper shall be covered with an erosion control blanket immediately after seeding.

6.3.3 SILT FENCE

Silt fencing shall be installed below disturbed areas where erosion would occur in the form of sheet and rill erosion. The size of the drainage area above the silt fence shall not exceed one fourth of an acre per 100

feet of silt fence length. Silt fencing may be installed across ditches only when the maximum contributing drainage area is not greater than 1 acre. Silt fence constructed across a ditch shall have wire support and shall be of sufficient length to eliminate endflow.

6.3.4 STRAW BALE BARRIER

Straw bale barriers may not be installed across ditches.

6.3.5 OUTLET PROTECTION

Preformed riprap lined scour holes or other suitable measures shall be installed at outlets of culverts and storm drains as needed to prevent erosion.

6.3.6 STORM DRAIN INLET PROTECTION

Storm drain inlet protection shall be installed around any new or existing storm drain inlets that will become operational before permanent stabilization of the corresponding disturbed drainage area has occurred. Storm drain inlet protection shall include either a sediment filter or an excavated area around the storm drain inlet.

6.3.7 ROCK CHECK DAM

The maximum height of the dam shall be 3 feet. The center of the dam shall be at least 6 inches lower than the outer edges. For added stability, the base of the check dam may be keyed into the soil approximately 6 inches. The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.

6.3.8 TEMPORARY SEDIMENT TRAP

Temporary sediment traps may be constructed below disturbed areas where the total drainage area is less than 3 acres.

6.3.9 TEMPORARY SEDIMENT BASIN

Temporary sediment basins may be constructed below disturbed areas where the total drainage area is equal to or greater than 3 acres.

6.3.10 OTHER CONTROLS

Other controls such as diversion dikes, level spreaders, temporary seeding, etc. may be used if deemed necessary by the Contractor.

PART 8 – SITE UTILITIES

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8 SITE UTILITIES

8.1 GENERAL

Utilities shall be designed to be compatible with the existing utility systems, and constructed to provide minimum interruptions to service in the existing housing area. Utility bypasses shall be provided where necessary to ensure continued service to existing housing units during construction. Housing units may not be sited over top of existing or new utilities. The Contractor shall avoid running utilities underneath streets and sidewalks where at all practicable. In cases where it is necessary for the utilities to cross existing streets and sidewalks, the Contractor shall install lines by trenchless methods. Open trench methods will not be allowed in existing pavement. Portions of walks and concrete pavements requiring removal shall be removed to the nearest contraction joint. All existing utilities, including but not limited to storm drains, electrical, sewer, gas, water, and communication lines that are crossed during installation of new utilities shall remain in service during construction. If this is not possible, all outages shall be in accordance with Section 01363. All underground utilities from field data and surveys, site investigations, and digging permit locates, shall be marked within and adjacent to areas of the work. See Section 01363 for digging permit requirements and coordination. All work areas shall be investigated with detection devices for cables and pipelines, to confirm locations, identify unknown utilities, and establish depths. All underground utilities potentially disturbed by the work shall be found by hand digging prior to mechanical trenching or excavating in the vicinity. The Government Representative shall be notified of detection activities 48 hours in advance. Detection devices shall be on-site at all times. Digging permits are required in accordance with Section 01363 for all utilities.

8.2 WATER DISTRIBUTION AND WATER SERVICE LINES SYSTEM

8.2.1 WATER DISTRIBUTION

All active water mains are ASTM C-900 pipe. Abandoned water lines along streets can remain when they do not interfere with new construction. Water mains exist in the vicinity of the locations shown on drawing sheet CU102, contained in the Appendices of the RFP. Contractor is required to maintain water service to existing housing units outside project site, except for pre-notified, limited periods in accordance with Section 01363.

8.2.2 WATER DISTRIBUTION AND SERVICE DESIGN CRITERIA

All connections made by the Contractor to the existing water distribution system (water mains) shall be in accordance with all applicable local, state, and federal standards and as stated herein. Water Distribution systems and service lines shall be designed and constructed in accordance with the references listed in Section 2 References to Criteria and TM 5-813-1/AFM 88-10 volume 1 (http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-1/) and TM 5-813-5/AFM 88-10 volume 5 (http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-5/). The piping and valves shall meet a minimum 150 psi working pressure for the water system. The water mains shall be defined as that part of the water system which supplies water to the fire hydrants. Pipes supplying groups of housing units or one housing unit exclusively shall be referred to as service lines. All water mains shall be valved so that not more than two hydrants will be out of service due to a single break in the water distribution system. Isolation valves shall be installed such that interruptions to service can be confined to no more than 10 family housing units or one-half of street or cul-de-sac. All water mains shall be looped, with no dead end mains allowed, except if approved by Contracting Officer. Minimum main size is 6 inches. A copper tracer wire shall be place directly above all non-metallic mains when plastic marking tape does not provide

means of determining alignment of pipe by metal detecting equipment. Isolation valves shall be easily accessible and as a minimum shall be at the intersection of mains. The Contractor shall be responsible for protection of the existing water main line where the new water service line is to be connected. If any existing water line is damaged during construction, the repair shall be made by and at the Contractor's expense in a satisfactory manner. The Contractor shall disinfect all new water lines and any remaining lines that do not remain fully pressurized during construction or connection.

The water service system shall be sized to provide adequate pressure and to accommodate the domestic demand required for the new housing units served, as well as the existing houses to remain and the fire hydrant loop system. The water domestic demand shall be in accordance with the AFM 88-10 Vol. 1 and 5. Water line trenches shall be of a depth to provide a minimum cover of 3 feet from the existing ground surface or from the finished grade, whichever is lower, to the top of the pipe.

The 10-inch existing water main on the east of the site will be enlarged to 12 inches to the limits shown on drawing sheet CU102. This line will be located within 20 feet of the existing security fence.

8.2.2.1 Water Service Lines Requirements

The service lines shall include the pipeline connecting the building piping to the existing water distribution lines to the connections with the building service at a point outside the building where such building exists. No metering of service is required. Service connections shall be via a new directly-tapped corporation stops, or by a service clamp for water services lines 2-inches or smaller diameter. A corporation stop and a copper gooseneck shall be provided with either type of connections. Service lines larger than 2-inches shall be connected to the main by a tapped saddle, tapping sleeve and valve, service clamp or reducing tee, depending on the main diameter and the service line diameter, and shall have a full-port ball valve. All service stops and valves shall be provided with service boxes. The service lines to each family housing unit shall be not less than 1 1/2-inch size.

8.2.2.2 Valve Boxes

Valve boxes shall be cast iron. Boxes shall be extension type with slide-type adjustment and flared base. The word "WATER MAIN" shall be cast in the cover. Covers shall be lockable. The boxes shall be of such length as will be adapted without full extension to the depth of cover required over the pipe at the valve location. Valve boxes shall be suitable for traffic. If cast iron boxes are used, they shall have a protective coating applied using a coal tar epoxy.

8.2.2.3 Existing Utilities

Abandoned water lines along streets can remain when they do not interfere with new construction. Where connections are made between the new work and the existing mains, the connections shall be made by using specials and fittings to suit the actual conditions. When made under pressure, these connections shall be installed using standard methods as approved by the Contracting Officer. If any existing water main line or fire hydrant is damaged during construction, the repair shall be made by the Contractor in a satisfactory manner to the Contracting Officer, at no additional cost to the Government.

8.2.2.4 Flow Requirements

The domestic demand for the new housing units served shall be designed in accordance with the AFM 88-10, Volumes 1 and 5, and the Air Force Family Housing Guide for Planning, Programming, Design and Construction, Section 3.1.4, Water Systems.

8.2.2.5 Fire Hydrants

Fire hydrants shall be compatible with those presently in use at the installation, with compatible pump and hose connections. All fire hydrants shall be in accordance with MIL-HDBK-1008C, Section 5.7 "Water Distribution System" and NFPA 24 "Standard for Installation of Private Fire Service And Their Appurtenances." Working parts of fire hydrant shall be bronze. Design, material, and workmanship shall be equal to the latest stock pattern ordinarily produced by the manufacturer. Hydrants shall be painted with 1 coat of red iron oxide, zinc oxide primer conforming to SSPC Paint 25 and 2 finish coats of silicone alkyd paint conforming to SSPC Paint 21 of the installation's standard color or as directed by the Contracting Officer. Hydrants shall also be painted and have reflective glass beads applied to the paint for night visibility. Locate fire hydrants such that no dwelling unit is more than 350 feet from one hydrant and no more than 500 feet from a second hydrant. Provide a minimum of one hydrant per 25 housing units. Measure the distance between housing units and hydrants along paved roads. Preference is to install hydrants at intersections whenever possible. Hydrant laterals shall be 6 inches minimum in size, shall not exceed 50 feet in length, and shall have an underground shut off valve with an adjustable valve box in each lateral within 10 feet of the hydrant for isolating hydrant. Hydrants shall have their pumper outlet facing the street. Hydrants shall be located a minimum of 3 feet and a maximum of 7 feet from pavement, and shall not be located in sidewalks or where obstructed by parked vehicles or shrubbery. Guard post barriers shall be provided where hydrant locations are subject to potential vehicle damage.

8.2.2.6 Materials

Steel, ferrous and concrete pipe shall be removed from the guide specifications, as they are not viable materials due to the corrosive nature of the soil at the project site. Material for valves shall be compatible with the material for the pipe.

8.2.2.7 Hydrostatic Leakage Tests

Hydrostatic pressure and leakage tests shall be conducted on the new water lines in accordance with SECTION 02510 Water Distribution System. Where any section of a water line is provided with concrete thrust blocking for fittings or hydrants, tests shall not be made until at least 5 days after the installation of the concrete thrust blocking, unless otherwise approved.

8.2.2.7.1 Pressure Tests

After the pipe is laid, the joints completed, fire hydrants permanently installed, and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping shall be subjected for 1 hour to a hydrostatic pressure test of 200 psi. Each valve shall be opened and closed several times during the test. Exposed pipe, joints, fittings, hydrants and valves shall be carefully examined during the partially open trench test. Pressure test shall be in accordance with SECTION 02510 Water Distribution System.

8.2.2.7.2 Leakage Tests

Leakage test shall be conducted after the pressure test has been satisfactory. The duration of each leakage test shall be at least 2 hours, and during the test the water line shall be subjected to not less than 200 psi. Leakage test shall be in accordance with SECTION 02510 Water Distribution System.

8.2.2.7.3 Concurrent Hydrostatic Tests

If allowed by code, the Contractor may elect to conduct hydrostatic test using either or both of the following procedures. Regardless of the sequence of tests employed, the results of pressure tests, leakage

tests, and disinfection shall be satisfactory as specified. All replacement, repair or retesting required shall be accomplished by the Contractor at no additional cost to the Government.

1) Pressure test and leakage test may be conducted concurrently.

2) Hydrostatic tests and disinfection may be conducted concurrently, using the water treated for disinfection to accomplish the hydrostatic test. This may only be accomplished after the system has been thoroughly flushed with water until all entrained dirt and mud has been removed. If water is lost when treated for disinfection and air is admitted to the unit being tested, or if any repair procedure results in contamination of the unit, disinfection shall be re-accomplished. Testing, correction and retesting shall be accomplished at no additional cost to the Government.

8.2.2.8 System Flushing and Disinfection

All potable water lines in this project shall be cleaned and disinfected. Prior to disinfection procedures, each segment of the line shall be flushed with potable water s ufficient to produce a minimum water velocity of 2.5 feet per second. Flushing shall be continued until entrained dirt and other foreign materials have been removed and until discharge water shows no discoloration. Where possible, Contractor shall utilize existing fire hydrants and blow-off valves for flushing. In the event neither is available, Contractor shall install a 2-inch (minimum) tap and temporary blow-off assembly. Tap shall be plugged upon completion of flushing procedures unless otherwise directed by the Contracting Officer. Upon satisfactory cleaning and flushing of the water lines, Contractor shall disinfect and test the lines in strict accordance with the latest version of AWWA C651 and in accordance with SECTION 02510 Water Distribution System.

8.2.2.9 Coordination

All work on existing and new water lines is to be coordinated with the Contracting Officer or his designee prior to construction.

8.2.2.10 Cutting Pipe

Cutting pipe shall be done in a neat and workmanlike manner without damage to the pipe and in accordance with SECTION 02510 Water Distribution System. Unless otherwise recommended by the manufacturer and authorized by the Contracting Officer, cutting shall be done with an approved type mechanical cutter. Wheel cutter shall be used when practicable. Copper tubing shall be cut square and all burrs shall be removed. Squeeze type mechanical cutters shall not be used for ductile iron. Asbestos pipe must be cut according to 29 CFR 1926 1101, the cutting mechanism must be wet method with attached ventilation device to collect the asbestos fibers.

8.3 SANITARY SEWAGE SYSTEM

8.3.1 GENERAL

All existing sewer mains and sewer service lines shall be removed within the boundaries of the FY03 housing area (see drawing sheet CU103), except for mains in Washington and Virginia Street. These lines may be used in-place, if the new design allows. The Contractor shall provide a new sanitary sewer collection system and connect to the existing manholes immediately outside the boundaries of the project site. The existing manholes should remain in place and be reused where the new sewer will be connected to the existing system, unless damaged under construction and shall be made watertight. The excavation and backfilling of the lines shall be as specified in the SECTION 02316 Excavation, Trenching, and Backfilling for Utilities.

8.3.2 SEWER LATERALS

New sewer laterals shall be provided for each housing unit. Existing sewer laterals shall be removed and the connections capped at the point of connection (as shown on drawing sheet CU103) to the main to prevent infiltration of groundwater. Each housing unit lateral shall be connected directly to the sewer main. Combining multiple laterals is prohibited. Sewer lateral lines (connections from interior family housing sewer lines to main) shall be minimum of {AM#0003} 4 inches. Only interior house sewer lines may be placed under buildings. All house sewers under buildings shall be as specified in Part 11 of this document entitled "PLUMBING." House sewer lines from any one unit shall not pass under any other unit(s). Cleanouts shall be provided to allow cleaning of all lines. Cleanouts, in yard areas, shall be set in a box with a hinged cover or screw cap fitting. Cleanouts shall be provided for all branches at points of change in direction before running out to a main. The building service sewer line (exterior to the unit) shall be provided with a double clean out within 5 feet of the building. Foundation and roof drains shall not be connected to the sanitary sewer.

8.3.3 SEWER MAINS

Existing sewage collection system mains are PVC and are located as shown on the RFP drawings. All sewer mains in the project area shall be replaced, except as note in paragraph 8.3.1. The Contractor is to verify the existing sewer main upstream and downstream where the new sewer will be connected and identify existing pipe materials, slopes and elevations. The new sewer main pipe provided by the Contractor shall be sized to handle the sewer flow from the existing housing areas to the southwest of the project site as follows:

	Flow To Washington Street Sewer Main	Flow To Virginia Street Sewer Main
Extreme Peak	205 gpm	157 gpm
Minimal Peak	104 gpm	81 gpm
Average Hourly	34 gpm	28 gpm

The remaining loads (flows) generated by the new housing units shall be split between the two main lines that are currently on Washington and Virginia. Each sewer main shall accommodate at least 40 of the new housing units (achieve approximately a 50/50 split, if possible). See Figure 8-1 at the end of this section for a sewer flow schematic representation. Sewer main may be replaced by pipe bursting, or open trenching.

8.3.4 DESIGN CRITERIA

Sanitary sewage system shall be designed and constructed as specified in the TM 5-814-1/AFM 88-11, Volume 1, Sanitary and Industrial Waste Collection - Gravity Sewer and Appurtenances (http://www.usace.army.mil/inet/usace-docs/armytm/tm5-814-1). The Contractor shall field verify the sanitary sewer capacity and invert elevations to ensure that it is adequate for the flows generated by the new family housing units. The minimum earth cover over sewer lines is 3 feet. Fittings, and joints shall be compatible with the pipe supplied and have a strength not less that that of the pipe. Sewer lines shall be constructed straight from manhole to manhole. Curvilinear alignments are prohibited.

8.3.5 MINIMUM VELOCITY

A minimum velocity shall be 2.0 feet per second, in accordance with AFM 88-11, Vol. 1.

8.3.6 DOMESTIC SEWAGE REQUIREMENT

The domestic sewer demand for the new housing units served shall be designed and constructed in accordance with the AFM 88-11, Vol. 1.

8.3.7 WYE BRANCHES

Wye branches shall be installed where new sewer service connects to existing sewer main. The installation of wye branches in an existing sewer shall be made by a method that does not damage the integrity of the existing sewer. Wye branches shall be installed in accordance with SECTION 02531 Sanitary Sewers.

8.3.8 MANHOLES

Contractor is to construct all new manholes within the project site which shall be designed as indicated herein. New manholes shall be provided by the Contractor when connecting new service lines to an existing main sewer and the installation of a wye-connection could damage the integrity of the existing sewer or manhole. Manholes shall be at changes of direction, slope, and size of pipe. Manholes shall be spaced not more than 400 feet apart for pipe diameters 6 inches to 15 inches, and 600 feet apart for pipe diameters 18 inches and greater. Manholes should be located at intersections of streets when possible. Avoid placing manholes where the tops will be submerged or subject to surface water inflow. Where the invert of the inlet pipe would be more than 30 inches above the manhole floor, a drop connection shall be provided. Manholes are permit required confined space. Personnel must have a master entry permit in accordance with OSHA regulations. In addition, personnel must monitor all spaces prior to entry for O_2, LEL, CO, and H_2S every 15 minutes.

8.3.8.1 Connection to Existing Manholes

Pipe connections to existing manholes shall be made so that finish work will conform as nearly as practicable to the applicable requirements specified for new manholes, including all necessary concrete work, cutting, and shaping. The connection shall be centered on the manhole. Holes for the new pipe shall be of sufficient diameter to allow packing cement mortar around the entire periphery of the pipe but no larger than 1.5 times the diameter of the pipe. Cutting the manhole shall be done in a manner that will cause the least damage to the walls.

8.3.9 CALCULATIONS AND DRAWINGS

Details of all sanitary sewage structures shall be shown on the final design drawings. The Contractor shall run the necessary topographic and utility surveys (see Part 4, Section 01000). Verification of actual rim and flow line elevations, particularly at the taps, shall be made by the Contractor prior to beginning final design.

8.3.10 COORDINATION

All work on existing and new sewer line to be coordinated by Contractor with the Contracting Officer or his designee prior to construction.

8.3.11 LEAKAGE TESTS

Lines shall be tested for leakage by low-pressure air testing, infiltration tests or exfiltration tests, as appropriate. Low-pressure air testing procedures for pipe shall use pressures and testing times as described in ASTM C 828 and C 924, after consultation with the pipe manufacturer. Prior to infiltration or exfiltration tests the trench shall be backfilled up to at least the lower half of the pipe. If required, sufficient additional backfill shall be placed to prevent pipe movement during testing, leaving the joints uncovered to permit inspection. Visible leaks encountered shall be corrected regardless of leakage test results. When the water table is 2 feet or more above the top of the pipe at the upper end of the pipeline to be tested, infiltration shall be measured using a suitable weir or other device acceptable to the (Contracting Officer) CO. When the CO determines that infiltration cannot be properly tested, an exfiltration test shall be made by filling the line to be tested with water so that a head of at least 2 feet is provided above both the water table and the top of the pipe at the upper end of the pipeline to be tested. The filled line shall be allowed to stand until the pipe has reached its maximum absorption, but not less than 4 hours. After absorption, the head shall be reestablished. The amount of water required to maintain this water level during a 2-hour test period shall be measured. Leakage as measured by either the infiltration test or the exfiltration test shall not exceed 0.2-gallon per inch diameter per 100 feet of pipeline per hour. When leakage exceeds the maximum amount specified, satisfactory correction shall be made and retesting accomplished. Testing, correction and retesting shall be accomplished at no additional cost to the Government. Leakage Test shall also conform to SECTION 02531 Sanitary Sewers.

8.3.12 TEST FOR DEFLECTION

A deflection test shall be made on the entire length of the installed pipeline not less than 30 days after completion of all work including the leakage test, backfill, and placement of any fill, grading, paving, concrete, or superimposed loads. Deflection test shall conform to SECTION 02531 Sanitary Sewers.

8.3.13 SEPARATION DISTANCE

Separation distance between potable water and sanitary sewers shall conform to AFM 88-11, Vol. 1.

8.4 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES

8.4.1 TRENCHES

The trench for water lines, sewers, gas or electrical lines shall be as recommended by the manufacturer of the pipe to be installed and in accordance with SECTION 02316 Excavation, Trenching, and Backfilling for Utilities. New water mains and service lines shall have a minimum of 3 feet of cover. Water, sewer, storm drains, and gas mains shall be placed in separate trenches. The separate trenches shall comply with a minimum horizontal and vertical separation as required in local, state, and federal codes.

In cases where it is necessary for the utilities to cross existing streets and sidewalks that will remain in service and not be replaced, the Contractor shall install lines by trenchless methods. Trenchless methods shall be used when an underground utility line crosses any undisturbed roadway, and in the opinion of the Contracting Officer, the pipe, cable, or duct can be safely and properly installed and backfill can be properly compacted in such sections. Excavation by open trench methods will not be allowed in existing pavement. Bedding and initial backfill material shall be in accordance with the manufacturer recommendations and project's Preliminary Geotechnical Report located in the Appendix 1. Trench excavations shall adhere to requirements prescribed in EM 385-1-1, September 1996, Safety and Health Requirements Manual (http://www.usace.army.mil./inet/usace-docs/eng-manuals/em.htm). Special attention shall be given to slopes that may be adversely affected by weather or moisture content.

8.4.2 PLASTIC MARKING TAPE AND MARKING WIRE

Warning tapes shall be installed directly above the utility, at a depth of 18 inches below finished grade for areas that do not use trenchless method unless otherwise shown. Plastic marking tape shall be in accordance with to Section 02316 Excavation, Trenching, and Backfilling for Utilities. Where the utilities are installed using trenchless method, all "nonmetallic" line shall have #12 AWG TW (thermal-weather resistant) coated conductor installed over the pipe for the reception of a locator transmitter signal. The wire leads shall be brought up, identified and protected in valve boxes, on service risers or any other convenient location. Contractor shall provide manufactured terminals with covers at ends of tracer wires.

8.5 STORM DRAINAGE SYSTEM

The design of the storm drainage system for the project site shall be in accordance with TM 5-820-4/AFM 88-5, Chapter 4 (http://www.usace.army.mil/inet/usace-docs/armytm/tm5-820-4/) and as supplemented by this chapter. The existing storm drainage system within the project site is surface sheet flow from south to north into the 100-year flood plain adjacent to the site. Curb inlets leading to a subsurface storm drainage system exist to the north of the project site (as shown on drawing sheet CU105, contained in the Appendices of the RFP). It is required that the new storm drainage system designed by the Contractor to serve the new site layout be subsurface piping flowing into the 100-year flood plain adjacent to the site. Channel flow is permitted in the 100-year flood plain area. Profiles shall be required for the underground storm drainage systems design and sections shall be required for culverts.

8.5.1 DETERMINATION OF RAINFALL RUNOFF

8.5.1.1 Methods

Runoff from drainage areas of 1 square mile or less will be determined by the use of the Rational Formula as defined below. For drainage areas larger than 1 square mile or where detailed consideration of ponding is required, computation should be by unit-hydrograph and flow-routing procedures.

Rational Formula: Q = C (I-F) A, where

Q is the discharge in cubic feet per second
C is the terrain factor
I is the rainfall intensity in inches/hour
F is the infiltration rate in inches/hour
A is the drainage area in acres

TABLE 8-1
MINIMUM VALUES FOR SOLVING FOR Q IN THE ABOVE EQUATION

Drainage Area (% Paved)	tc (Minutes)	C	F
100	10	1.00	0.0
90	11	.96	.06
80	12	.92	.12
70	13	.88	.18
60	14	.84	.24
50	15	.80	.30
40	16	.76	.36
30	17	.72	.42
20	18	.68	.48
10	19	.64	.54
0	20	.60	.60

8.5.1.2 Design Storm Frequencies

Design storm frequencies shall be in accordance with TM 5-820-4/AFM 88-5 Chapter 4, as applicable.

8.5.1.3 Time of Concentration (tc)

The minimum times of concentration for various surfaces are as follows: turfed areas, 20 minutes; paved areas, 10 minutes; roofed areas, 10 minutes. After the time of concentration has been determined, it will be used to determine the rainfall intensity (I) using Intensity Duration curves.

8.5.1.4 Design Discharge

For small drainage systems (tc = 30 minutes/or less), "peak on peak" discharges shall be used to determine the design discharge; for large drainage systems (tc greater than 30 minutes) phased discharges shall be used for major trunk lines, and peak discharges for inlets and minor lines.

8.5.2 DRAINAGE SYSTEMS

8.5.2.1 General

The drainage system layout will be designed to best meet the requirements of the housing area. The system will be as economical as practicable, taking into consideration topography, ultimate development of drainage area, possible future extension, outfall locations, and coordination with existing drainage systems and other existing or future underground utilities.

8.5.2.2 Subsurface Drainage Systems

8.5.2.1.1 General: Design of such systems will be in accordance with TM 5-820-4/AFM 88-5 Chapter 4. Whenever possible, pipe crowns will be matched in elevations. Profiles of pipes should show all existing and new underground utilities and pertinent surface features. The minimum pipe gradient shall be 0.3 percent, and piping should be designed to provide a minimum velocity of 2.5 fps and limit outfall velocities to non-erosive values (usually 4 fps to 6 fps depending upon soil types). If non-erosive velocities cannot be attained, erosion protection shall be provided.

8.5.2.1.2 Street Drainage: Subsurface street drainage shall be accomplished by the use of curb and gutter and curb inlets. Curb gaps will be considered in areas where roadside ditches are used. The center one-third of the street should not convey runoff during the passing of the design storm. Inverted crown sections for the streets shall not be used without prior approval from the Contracting Officer. Curb inlets should not be located in the radius of street intersections, at curb returns, or where pedestrian traffic is most likely to occur.

8.5.2.1.3 Sizing of Inlets: The design of surface inlets and curb inlets shall be in accordance with AFM 88-5, Chapter 4.

8.5.2.1.4 Sizing of Pipes: New underground storm drainage pipes shall be sized by computation of backwater surface profiles. The minimum pipe size shall be 12 inches. See Southwestern Division AEIM for detailed information on required calculations.

8.5.2.3 Roof Drainage

Storm water will not be discharged into sanitary sewers. Grading adjacent to structures shall direct storm water discharged from downspouts onto splash blocks away from the structure, and protective measures will be provided where down spouts discharge onto erodible soils or gravel surfaces.

8.6 GAS DISTRIBUTION SYSTEM

The Contractor shall be responsible for designing new gas mains and laterals to serve the new family housing units. All gas distribution systems shall comply with the requirements of NFPA 54 and AFM 88-12, Vol. 1 (http://www.usace.army.mil/inet/usace-docs/armytm/tm5-848-1/). When connecting to existing steel piping system, provision shall be made to ensure that the integrity of the cathodic protection is not compromised. Shutoff valves shall be provided on the exterior of each housing unit. A gas regulator and provision for future installation of an individual gas meter to monitor fuel use shall be provided for each housing unit. The building service entrance shall be installed at a height sufficient to allow for future installation of the gas meter. Abandoning existing gas piping is not allowed. All old gas piping shall be removed and properly disposed of by the Contractor. See sheet CU104 of the RFP drawings for the location of the existing distribution system.

8.6.1 MATERIALS

Materials and appurtenances shall be free of defects and suitable to accomplish the stated objectives of gas distribution systems. Exterior pipe that is buried below grade shall be polyethylene as described below. Exterior pipe that is above grade shall be galvanized steel pipe in accordance with ASTM A53.

8.6.1.1 Polyethylene Pipe

Polyethylene pipe is required for new gas distribution and shall conform to ASTM D2513, Standard Specification for Thermoplastic Gas Pressure Piping Systems, with fittings complying with either ASTM

D2513 or ASTM D2683, Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing. Connections to metal pipe shall comply with ANSI B16.5, Pipe Flanges and Flanged Fittings, or manufacturers recommended standards.

8.6.2 TESTING

Since the Contractor will be required to make use of the existing gas mains, he/she shall design and install provisions in the new system to allow isolating it from all existing portions of the system to accommodate pressure testing. The pressure test shall be in accordance with ANSI B31.8. The test shall continue for at least 24 hours between initial and final readings of pressure and temperature.

8.6.3 EXISTING GAS SYSTEM

In August 1996, a utility study was performed on all utilities, including the gas system. Offeror shall rely on the following assumptions from the utility study:

(1) The natural gas distribution system, existing and new, was modeled and a flow simulation was made using a computer program developed by Arkla Gas Co. Information for modeling the system was taken from "Comprehensive Plan" drawings furnished by Dyess Air Force Base and new housing construction drawings furnished by Albuquerque District, Corps of Engineers. Outlet pressure of the regulator serving the family housing area was assumed to be 20 psig as indicated on the drawings. Design flow to each housing unit was assumed to be 75 cubic feet per hour for existing units and 60 cubic feet per hour for new units. These numbers are consistent with Arkla Gas Co. suggested design practice. A review of the historical usage data for the existing housing, as provided by the Base, suggests a peak flow to each unit of approximately 12 cubic feet per hour. Therefore, the following findings should be considered very conservative.

(2) Findings: The results of the computer analysis that follows indicates a minimum pressure in the distribution system of 8.0 psig. This is considered to be acceptable, since the service regulator at each housing unit should function properly with as little as 1 or 2 psig inlet pressure.

8.6.4 VALVES

Polyethylene plug valves shall be installed at intersections of existing mains and other locations so that interruptions to service can be confined to no more than 30 housing units. In addition, shutoff valves shall be provided on the exterior of each housing unit on service lines.

8.6.5 VALVE BOX

Valve boxes shall be cast iron with lockable cover. The words “GAS MAIN” shall be cast in the cover.

8.7 ELECTRICAL DISTRIBUTION

8.7.1 EXISTING SYSTEM

a) There are two primary feeders which supply the project site. These feeders are connected in a loop fed arrangement and the system voltage is 12470/7200V.

b) The housing area to the south and west of the project site, also referred to as the FY94 housing area, is supplied through one feeder from the Alpha Substation and one feeder from the Charlie Substation.

c) The existing electrical distribution system on the project site, including switches, conductors, guys, light poles, fixtures and pole bases etc. shall be demolished by the Contractor prior to the construction of the new housing units. See drawings provided with this RFP.

d) Existing equipment will not be returned to the Contracting Officer.

8.7.2 SYSTEM DESIGN

a) Additional work required on the electrical system required by new construction or calculation results, shall meet requirements of the National Electrical Code and the National Electrical Safety Code.

b) The new primary distribution for the project site will be underground. One feeder from the Alpha Substation and one feeder from the Charlie Substation will be extended to the site and they will be connected in a loop feed arrangement. Pad mounted primary switchgear will be used to connect the feeders and to supply the unit transformers. The existing feeder from the Alpha Substation which extends around the eastern edge of the housing addition is overhead from the substation to a point to the northeast the project site, where it then transitions to underground. At a point in this overhead feeder near this transition, a new aerial to underground transition will be made for the new east feeder for the project site. A pad-mounted sectionalizing switch will be set at this transition and this will be one origination point for the new feeder loop. The existing feeder from the Charlie Substation is overhead and extends around the western edge of the housing addition. It will be tapped to the west of the FY94 housing near the existing pad mounted switches used for that project. At this location another aerial to underground transition will be made, a pad-mounted sectionalizing switch will be set and this will be used for the second origination point of the project site feeder loop.

c) Pad-mounted sectionalizing switches will be provided throughout the site to connect the feeder-loop and to supply the housing unit transformers. These transformers will be fed in a looped arrangement such that any transformer in the system will not be rendered out of service due to the loss of another transformer in the loop.

d) The utilities shall be located at the back lot lines and shall be routed to each unit from the transformer.

8.7.3 METHODS

8.7.3.1 Medium Voltage Cable

Medium voltage cable shall be installed in concrete encased PVC conduit in accordance with NESC with a continuous cable marker tape 6 inches below grade. Cable shall have the same characteristics as the existing underground feeder cables. The burial depth for primary feeders shall be 3 feet to top of encasement.

8.7.3.2 Underground Splices

Underground connection or splices are prohibited, except in manholes. Splices shall be in a self-draining, rodent resistant box with a cover.

8.7.3.3 Service Laterals

Service laterals shall be underground. The length of secondary distribution service laterals from the transformer secondary to the building service entrances shall be minimized. Service laterals shall be buried 3 feet below finished grade with a minimum separation of 1 foot from the telephone and TV cables. Cable marking tape shall be installed over service laterals. Secondary service lateral cables shall be service entrance rated, copper and installed in conduit. Burial depth of conduit shall be 2 feet to top of conduit.

8.7.3.4 Pad-Mounted Primary Switchgear

Pad-mounted switchgear shall be four-way and set on concrete pads. Switchgear shall have a switch for each of the four circuits. Elbow type connections will be provided. Switchgear will be rated 15 kV with a bil rating of 95 kV.

8.7.3.5 Service Entrance

Provide a service entrance to each housing unit and split to each unit using a NEMA 3R junction box. Each unit shall have a meter socket with jumper plates and clear weather sealed cover. Locate entrance in mechanical room or garage.

8.7.3.6 Transformers

Transformers shall be low profile pad-mounted and shall have two non-fused switches for a loop connection. Transformers shall have four-way switches designated as follows: LINE A ONLY / LINE A&B / LINE B ONLY / OPEN. Pad-mounted transformers shall be dead front, and have elbow type separable insulated load break connectors. Transformers shall also be provided with oil-immersed, bayonet-type, overload fuses in series with partial range current-limiting fuses. Transformer windings shall be copper. Transformers shall have tap changer, dial type thermometer with maximum temperature indicator, magnetic liquid level gage, pressure relief valve, pressure vacuum gage and a drain valve with sampler. Transformer insulating liquid shall be FR3 Enviro Temp, or equal. Provide a fiberglass base with basement. The high voltage compartment of the transformer shall have surge arrestors for each bushing insert.

8.7.3.7 Street and Area Lighting

Residential roadway lighting, including collector streets, shall be provided in accordance with the IESNA Lighting Handbook. Provide lighting at roadway intersections, bus stop locations, and at intervals not exceeding 200 feet between intersections. Area lighting shall be provided at intervals not exceeding 200 feet along area walkways not otherwise illuminated, common area walks connecting play lots, and at all steps in area walkways. Area lighting shall be provided in accordance with the IESNA Lighting Handbook. Luminaries shall be actuated by photoelectric control, one photocell per circuit, and supplied from multiple circuits originating from a pad-mounted transformer. Photoelectric controls shall have twist lock base. Fuses in fuse holders at the base, will be provided for the circuit conductors.

Fixtures and poles shall be selected and located in accordance with the Dyess Design Technical Letter No. 2, July, 1998. (See Appendices).

8.7.3.8 New System Requirements

a) The primary distribution voltage is 12470/7200 volts. It is the same as the existing system.

b) All wires, cables, and transformer windings are to be copper.

c) Use 1/0 cable for power from the distribution system to the transformers. Cable shall be EPR insulated, 15KV jacketed concentric rated for continuous operation at 90 degrees C conductor

temperature copper wire. Use 2/0 cable for power from the transformer laterals to the family housing units.

d) Transformer pads are to be fiberglass ground sleeve/ground sleeve pads (heavy duty). The insulation on exterior primary cables is to be XLP 220mil, rated for 15 kV with a full concentric neutral.

8.8 TELEPHONE

Southwestern Bell will design, furnish, and install the exterior telephone distribution cables, telephone boxes, and connections to the existing telephone system and to the new housing units. Conduit (1-1/2 inch) required between underground terminal boxes and each housing unit shall be provided by the Contractor.

a) SBC point of contact is Randy Pruett (915) 675-3635. The telephone system shall be located underground in the rear of the housing units and installed in the same trench as the electrical distribution and cable TV systems. The Contractor shall be responsible for assuring that telephone, power, and cable TV layouts are thoroughly coordinated and that they are installed in accordance with all codes, regulations, requirements, and specified clearances. The service entrance shall be located in the mechanical room of the new family housing units.

b) The local telecommunications company will provide the exterior telephone design. The Contractor is responsible for coordinating with and for ensuring that this company receives whatever information and drawings required to complete the exterior telephone design.

8.9 TELEVISION

a) Cox Communications (local phone number: 915-698-3585) will design and install the exterior CATV cables, pedestals, and connections to the new housing units. The Contractor shall arrange a coordination meeting with Cox Communications prior to the 100 percent design phase after award of the contract to ensure the design is accurate.

b) The cable TV system shall be located underground in the rear of the housing units and installed in the same trench as the electrical distribution and telephone systems. The Contractor shall be responsible for assuring that cable TV, power, and telephone layouts are thoroughly coordinated and that they are installed in accordance with all codes, regulations, requirements, and specified clearances. The service entrance termination box shall be located in the mechanical room of each housing unit

c) The Contractor is responsible for coordinating with and ensuring Cox Communications receives information and drawings required to do the exterior cable TV system design.

8.10 GENERAL ELECTRICAL, TELEPHONE, AND CABLE TV REQUIREMENTS

a) Electrical, telephone, and cable TV shall not be installed in the same trench as water, gas, or sewer.

b) Separation of utilities shall be per the National Electrical Safety Code, and other applicable codes.

c) The Contractor shall coordinate the installation of electrical, telephone, and cable TV cabling to minimize the time the trench is open.

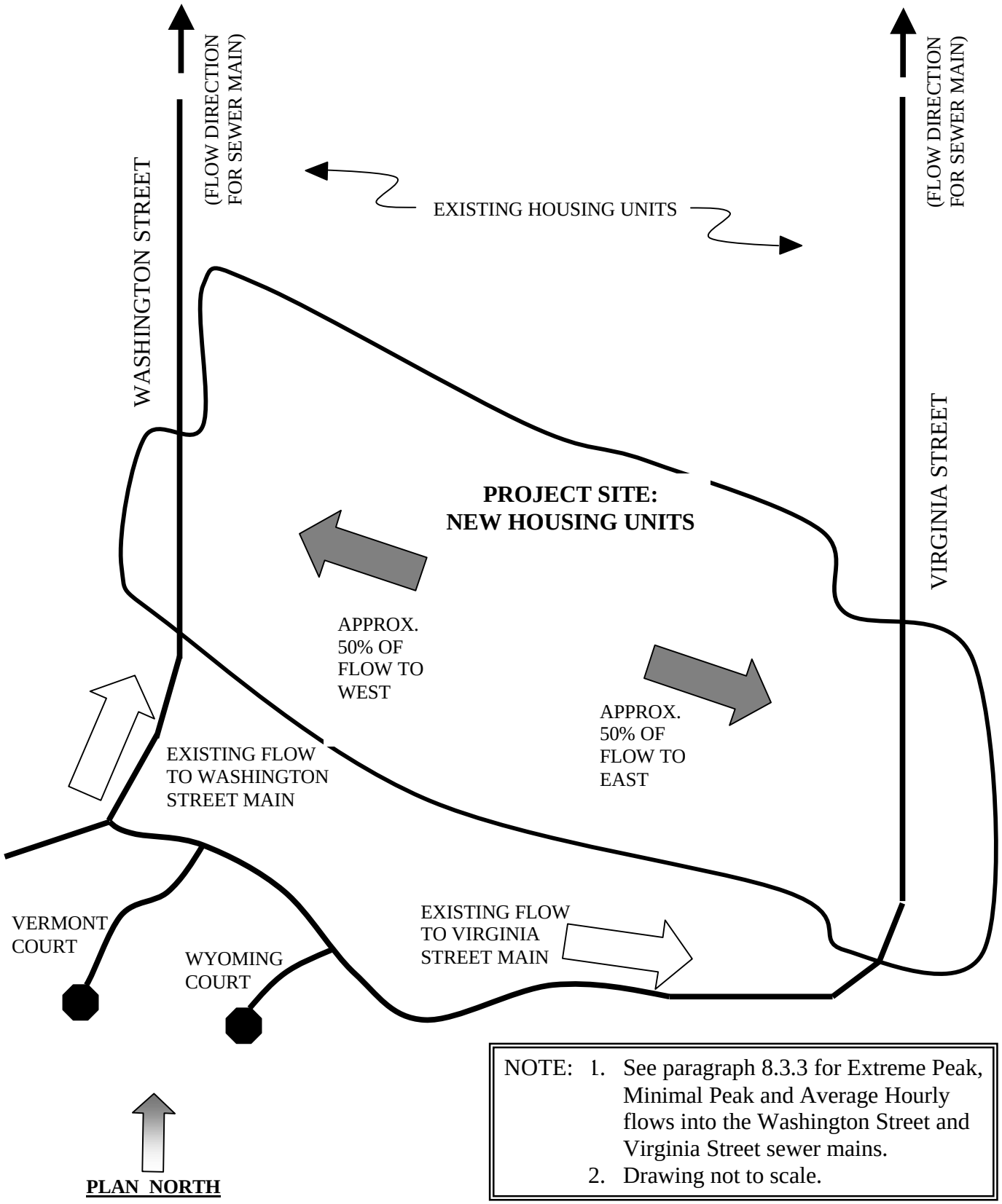
d) The Contractor shall provide complete calculations for the entire electrical design during the 100 percent design phase, after award of the contract. As a minimum, provide calculations for the transformer sizing, voltage drop on the service entrance cables, circuit breaker sizing, electrical loads, short circuit ratings, and area lighting.

e) The Contractor is responsible for (i) the phasing of the demolition of the existing electrical, telephone, and cable TV service drops to existing housing units, (ii) any temporary fixes required to minimize disruption of services to surrounding areas (see Section 01363), and (iii) the phasing of the installation of the new underground electrical, telephone, and cable TV services to the new family housing units. The Contractor shall coordinate with the local telephone and cable TV companies and the Contracting Officer to: (i) plan the phasing of the demolition, (ii) design the temporary fixes to ensure minimal disruption of electrical, telephone, and cable TV services to the surrounding areas (see Section 01363), and (iii) plan the phasing of the installation of the new underground services.

f) The Contractor is responsible for coordinating with all utilities on details about demolition, installation, and construction cost responsibilities.

Figure 8-1

SCHEMATIC OF SANITARY SEWER FLOW



NOTE:
1. See paragraph 8.3.3 for Extreme Peak, Minimal Peak and Average Hourly flows into the Washington Street and Virginia Street sewer mains.
2. Drawing not to scale.

PART 9 – HOUSING UNIT DESIGN/CONSTRUCTION

INDEX

9 HOUSING UNIT DESIGN / CONSTRUCTION

9.1 GENERAL

Unit design for square footage shall be within the ranges specified in Table 1-1. Increases in unit design above the maximum GSF or NSF are prohibited, except as noted below to accommodate accessible units.

9.1.1 GROSS AREA DEFINITION

Gross floor area includes all interior spaces (finished and unfinished) within the exterior faces of exterior walls and centerline of party walls (in duplex units) of housing units with the following exclusions:

a) Garages.

b) Exterior bulk storage.

c) Trash enclosures.

d) Porches, open or closed, which are not heated or cooled and which retain the basic characteristic of a porch.

e) Terraces, patios, decks, balconies, and entrance stoops.

9.1.2 NET AREA DEFINITION

Net area is defined as the space inside the exterior and party walls. Net area excludes:

a) Exterior and party walls.

b) Half thickness of interior walls adjacent to excluded areas.

c) Utility (Laundry) rooms.

d) Interior and exterior bulk storage.

e) Washer and dryer alcoves (not to exceed a combined 30 ft^2).

f) Mechanical room.

g) Unfinished attic.

h) Patios.

i) Garages.

j) Increases required to meet accessibility standards (not to exceed 75 ft^2).

k) Open or enclosed porches without heating, air conditioning, or interior-type finish.

9.2 ACCESSIBILITY

(a) Accessible Units. (See paragraph 1.2.3) Accessible units shall be designed in such a way that they may be easily and readily modified to accommodate physically challenged occupants, at time of occupancy. This means required door hardware, bathroom layout, kitchen layout, grab bars, plumbing hookups, light switches, outlets and controls do not need to meet requirements at the time of construction but must meet the requirements at time of occupancy. Also, requirements/replacements for cabinet heights, work surfaces, plumbing fixtures, and the warning devices for the hearing and visually impaired shall be made at time of occupancy. Revisions / replacements at the time of occupancy will be made by the Government. Net square footage limitations can be exceeded if necessary as noted in paragraph 9.1.2 (j), to accommodate disabled accessibility.

(b) A partial list of minimum accessibility measures to be included in the accessible units for this project are as follows (see UFAS 4.34 and ADA (Americans with Disabilities Act) for the complete requirements):

1. Provide minimum of one accessible (barrier free) entrance into accessible housing unit with walks and access to trash disposal and other housing exterior features, including parking.

2. All exterior doors shall be a minimum 3'-0" wide. Provide thresholds with a maximum height of 1/2-inch above adjacent surface at all exterior doors to housing unit.

3. Provide standard base and wall cabinets to be modified by the Government as the need arises. Adjust rough-in plumbing to accommodate future lowered sinks and lavatories.

4. Doors between all interior rooms including interior storage and utility shall be a minimum of 2'-10" wide.

5. Provide necessary blocking and reinforcing for the future installation of grab bars in appropriate locations, per the UFAS.

6. A full bathroom to provide barrier-free access, except that standard vanities shall be provided. Rough-in shall accommodate future barrier-free lavatories. The Government will replace items as the need arises.

7. Provide standard height toilet. The Government will provide handicap toilets as the need arises.

8. Bedroom closets shall have alternate cleats installed to provide barrier free heights for rod and shelf.

9. Sink and kitchen faucets shall be standard equipment, except that the faucets must have lever-type handles at the time of construction.

10. Standard range, dishwasher and other appliances shall be provided for all units. Space and kitchen layout shall accommodate future equipment complying with UFAS 4.34.6.6 and UFAS 4.34.6.8. The Government will replace items as the need arises.

11. Accessible spaces shall have maneuvering space complying with UFAS 4.2.2 and UFAS 4.2.3 and surfaces complying with UFAS 4.5 (with exceptions as noted herein).

9.3 FUNCTIONALITY

Rooms shall be sized and arranged for efficient use, good circulation, and furniture placement. The distribution of space for food preparation living and dining, sleeping, bathing, halls, closets, and services should be balanced and should enhance the intended functions. See Appendix 7 for example floor plans of a 2-BR duplex, a 3-BR duplex and a 3-BR stand-alone housing unit. These example floor plans are provided for reference only and are not intended as mandated plans representing all required features. Example plans may not satisfy RFP requirements as set forth herein. Offeror is solely responsible for satisfying RFP requirements.

a) Habitable rooms shall not be used as halls for entry into a housing unit or for primary circulation within a housing unit.

b) Indoor and Outdoor Integration. Emphasize factors that enhance indoor and outdoor living. Consider size, layout and location of patios, balconies, yards, and features that encourage family use of outdoor areas.

9.4 MAINTAINABILITY

The design of housing units including the selection and specification of exterior and interior finishes, equipment, appliances, and systems shall include consideration of maintenance ease and cost. Avoid products that require continuing maintenance at high cost.

9.5 FIRE PROTECTION AND SAFETY

Housing units will comply with the applicable National Fire Codes, including NFPA 101, Life Safety Code and MIL HDBK 1008C. Construction features will be provided in accordance with the International Building Code (IBC) 2000 and the Air Force Family Housing Guide, Dec. 1995. Housing units in this project are not required to be sprinkled.

9.5.1 FIRE RESISTANCE OF PARTY WALLS AND ROOF MATERIAL

Party walls shall extend as a single UL design assembly, from ground to the underside of roof sheathing. Provide firestops at floor, and ceiling or roof line. Penetrations in a fire rated partition are to maintain the fire rated integrity assigned to that partition. Provide Class A (ASTM E108, Standard Methods of Fire Tests of Roof Coverings) roof covering material throughout. Party walls (walls separating housing units) shall have a minimum fire-resistance rating of {AM#0003}one (1) hour.

9.5.2 MECHANICAL ROOMS

Rooms equipped with fuel-fired equipment such as a furnace and/or fuel-fired water heater shall serve only one housing unit and shall be lined with 5/8-inch Type X gypsum wallboard or equivalent noncombustible material. The mechanical room shall be located on an exterior wall and adjacent to the garage. The mechanical room space shall have a single door providing access from the exterior. A door between the garage interior and the mechanical room is prohibited. {AM#0003} The floor slab elevation of the mechanical room shall be the same elevation as the garage slab. The mechanical equipment room layouts shall be provided with ample floor space to allow for unobstructed access to accommodate routine servicing and maintenance of equipment and to have sufficient headroom to accommodate required equipment. Easy access to the furnace filter shall be provided. Contractor shall provide a floor drain in this room and slope floor slab to drain.

9.5.3 WALLS BETWEEN GARAGE AND HOUSING UNITS

Provide UL designed one-hour fire rating extending from the ground to the underside of the roof sheathing, for walls between garage and housing units.

9.5.4 ALARM SYSTEMS

Provide smoke alarms and carbon monoxide detectors within the housing unit that provide a local alarm only. See PART 14 of Section 01000 for specific alarm locations and additional requirements.

9.5.5 SECONDARY MEANS OF ESCAPE

Every sleeping room and living area shall have a secondary means of egress in accordance with NFPA 101.

9.6 SOUND ATTENUATION

9.6.1 EXTERNAL NOISE LEVEL REDUCTION GUIDELINES

The limits of this project site fall within two separate noise zones (Compatible Use Zone). The western-most portion of the project site is within the 70-75 DNL noise contour (75 dB zone) while the remaining area is within the 65-70 DNL noise contour (70dB zone). See drawings provided with this RFP for noise zone delineation. Contractor must incorporate sound-reducing measures into the design and construction of the housing to achieve an outdoor to indoor noise level reduction (NLR) of at least 25 dB in the 65-70 DNL noise contour. Locating new housing units within the 70-75 DNL noise contour is prohibited.

9.6.1.1 Compliance for NLR 25

Compliance with the following standards shall be deemed to meet the requirements of the Compatible Use Zone in which an NLR 25 is specified.

9.6.1.1.1 General

a) Brick veneer, exterior walls shall be constructed airtight. All joints shall be grouted or caulked airtight. Weep-holes with typical spacing are acceptable.

b) At the penetration of exterior walls by pipes, ducts or conduits, the space between the wall and pipes, ducts or conduits shall be caulked or filled with mortar.

c) Through-the-wall/door mailboxes shall not be used.

9.6.1.1.2 Exterior Walls

a) Stud walls shall be at least 4 inches in nominal depth and shall be finished on the outside with brick veneer.

b) Interior surface of the exterior walls shall be of gypsum wallboard 5/8-inch thick. The gypsum wallboard shall be fastened rigidly to the studs.

c) Sheathing panels shall be butted tightly and covered on the exterior with overlapping building paper. The top and bottom edges of the sheathing shall be sealed.

9.6.1.1.3 Windows

a) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-31.

b) Windows shall be double-glazed and shall be a minimum of 1/8-inch thick (each pane) with a minimum 3/8-inch air gap.

c) All operable windows shall be weather-stripped and air tight when closed so as to conform to an air infiltration test not to exceed 0.5 cubic feet per minute per foot of crack length in accordance with ASTM E283-65-T.

d) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to any of the following Federal Specifications: TT-S-00227 (http://astimage.daps.dla.mil/docimages/0000/58/72/51590.PD3 , with amendment http://astimage.daps.dla.mil/docimages/0000/58/72/51590.PD4) or TT-S-00230 (http://astimage.daps.dla.mil/docimages/0000/32/99/51593.PD2, with amendment http://astimage.daps.dla.mil/docimages/0000/32/35/51593.PD9).

e) The total area of glass for the housing unit shall be greater than 10%, but shall not exceed 20% of the floor area.

9.6.1.1.4 Doors

a) All exterior side-hinged doors, excluding patio door, shall be metal insulated doors with fibrous insulation and shall be fully weather-stripped. All doors shall be a minimum 1-3/4 inch thick throughout.

b) The perimeter of all exterior door frames shall be sealed airtight to the exterior wall construction in accordance with TT-S-00227 or TT-S-00230.

c) If any door contains glass, the glass shall be set and sealed in an airtight non-hardening sealant, or a soft elastomer jacket or glazing tape. Any door glazing in the front or side entrance doors shall not exceed 6 inches by 6 inches in size and shall be at least 3/16-inch thick.

d) French type patio doors are required at the rear of the unit. See section 9.17 for requirements.

9.6.1.1.5 Roofs

a) With an attic or rafter space at least 6 inches deep, and with a ceiling below, the roof shall consist of closely butted 5/8-inch thick plywood sheathing topped by roofing as required.

b) Skylights are prohibited.

9.6.1.1.6 Ceilings

a) Gypsum wallboard ceilings 5/8-inch thick shall be provided. Ceilings shall be substantially airtight, with a minimum number of penetrations.

b) Glass fiber or mineral wool insulation shall be provided above the ceiling between joists, as required in Table 9-10.

9.6.1.1.7 Ventilation

a) The powered ventilator attic opening shall be fitted with sheet metal transfer ducts of at least 20 gauge steel, which shall be lined with 1 inch thick coated glass fiber, and shall be at least 5 feet long with one 90 degree bend. Soffit vents are required for air intake. Gabled roof vents, if provided, shall have baffles.

b) All vent ducts connecting the interior space to the outdoors, excepting domestic range exhaust ducts and dryer vents, shall contain at least a 10 foot length of internal sound absorbing duct lining. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line of sight through the duct from the venting cross section to the room opening cross section.

c) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a baffle plate across the exterior termination to allow for proper ventilation. The dimensions of the baffle plate should extend at least one diameter beyond the line of sight into the vent duct. The baffle plate shall be of the same material and thickness as the vent duct material.

d) Contractor shall minimize the number and size of openings in the attic.

9.6.2 SOUND ATTENUATION AT PARTY WALLS

Party walls (walls separating adjacent housing units) shall be designed to provide the minimum airborne sound transmission ratings and impact isolation ratings stated in Table 9-1. Party wall shall be provided with 3-inch acoustical insulation woven between the studs and extending up to the top of the ceiling insulation. Penetrations shall be minimized and firestopped.

Table 9-1
Sound Transmission Standards For Party Walls

Area	FSTC[1]
Party Walls (Housing Unit Separation)	56
{AM#0003} _____.	___.
{AM#0003} _____.	___.

NOTE 1: Field Sound Transmission Class. See ASTM E336.

9.6.2.1 TESTING

Certified proof-of-performance field tests will be conducted to demonstrate that the party wall systems as constructed provide the required sound isolation. Tests for air-borne sound shall be made in compliance with ASTM E336. Tests for impact sound shall be made in compliance with ASTM E1007. Testing of 10 percent (minimum) of each type of party wall system is required. Location of test sites will be chosen at random by the Contracting Officer.

a) Any party wall system found to be inadequate shall have the deficiencies corrected and the additional qualifying tests conducted at the Contractor's expense. Testing at the Contractor's expense of greater than 10 percent of each system may be required if the Contracting Officer determines that the quality of construction requires this additional testing.

b) In cases where the field tested performance of the systems does not meet the designed performance, the maximum acceptable difference between field tests and sound transmission ratings shall be 2 decibels (dB) for airborne sound ratings and 5 dB for impact sound ratings.

9.6.3 PLUMBING AND HVAC EQUIPMENT

Design of plumbing and Heating, Ventilating and Air-Conditioning (HVAC) equipment shall include design provisions such as location, enclosure and acoustical treatment, to minimize transmission of noise generated by equipment within each housing unit and to eliminate transmission of noise to other housing units.

9.7 DIMENSIONS AND AREAS

9.7.1 MINIMUM AREAS

9.7.1.1 Interior/Exterior Spaces

Minimum areas/dimensions for interior spaces are shown in Table 9-2. Minimum areas/dimensions for exterior spaces are shown in Table 9-3.

Table 9-2
Minimum Areas and Dimensions – Interior Spaces

Space	Area	Length	Width/Depth	Height[1]
	ft^2	ft-in	ft-in	ft-in
Living[2]	150	11-6	11-6	8-0
Dining (2/3 BR)[2]	100	9-0	9-0	8-0
Family Room[2]	100	9-0	9-0	8-0
Kitchen[3,5]	64	8-0	8-0	8-0
Eating Area in Kitchen[4]	72	8-6	8-6	8-0
Refrigerator	6	3-0	2-0	6-0
Washer alcove	11	3-2	3-2	7-0
Dryer alcove	11	3-2	3-2	7-0
BR #1	150	10-0	10-0	8-0
BR #2	130	10-0	10-0	8-0
BR #3	90	9-0	9-0	8-0
Full Bath[5]	40	8-0	5-0	8-0
Entry Hall	13	3-3	4-0	8-0
Hallways	-	-	3-0	8-0

NOTES:

1. Ceiling heights in habitable rooms shall be a minimum of 8 feet-0 inches. Ceiling heights can be reduced in parts of these rooms to 7 feet to accommodate ducts.
2. Room dimensions are exclusive of circulation. Circulation paths along one side of a room are permitted but add 3 feet-0 inches to the minimum dimension.
3. a minimum of 4 feet must be maintained in front of and between cabinets.
4. Minimum area and dimensions are measured from face of cabinets to walls.
5. Accessible units must conform to UFAS, which requires greater minimum dimensions.

Table 9-3
Minimum Areas and Dimensions – Exterior Spaces

Spaces	Area	Length	Width/Depth	Height[1]
	ft^2	ft-in	ft-in	ft-in
Garage	282	12-8	22-4	8-0
Patio - 2 BR	120	{AM#0003} As required	{AM#0003} 8-0	8-0 (to underside of cover)
Patio - 3 BR	{AM#0003} 120	{AM#0003} As required	{AM#0003} 8-0	8-0 (to underside of cover)

9.7.1.2 Kitchen Cabinets, Counters and Pantries

See Table 9-5. Flat area is shown for countertops and drawers. Combined vertical shelf area is shown for pantry and base, wall and wall cabinets. Minimum sized wall cabinet space required for tenant-furnished microwave is 16 inches x 27 inches. Shelf to support microwave shall be 17 inches deep. A door is not required for microwave shelf. All other kitchen cabinets shall be 12 inches deep as noted in Table 9-4.

Table 9-4
Kitchen Cabinet, Counter & Pantry Area

Type of Housing Unit	Wall	Pantry/Base	Drawer	Counter
	ft^2	Ft^2	ft^2	ft^2
2 BR / 3 BR	24 / 28	24 / 28	12 / 14	18 / 20
Minimum Depth	12-inch	24-inch	24-inch	24-inch

9.7.1.3 Closets

Minimum closet width requirements are clear from the face of wall and stated in Table 9-5.

Table 9-5
Minimum Closet Widths

Closet	2 BR Units	3 BR Units
	Ft-in	Ft-in
Coat/ Entry Hall	5-0	5-0
BR #1(Master)	6-0	8-0
BR #2	4-0	6-0
BR #3	3-0	4-0
Broom	3-0	3-0
Linen	2-0	4-0

9.7.1.4 Bulk Storage

Minimum and maximum requirements for interior, exterior bulk storage are shown in Table 9-6.

Table 9-6
Bulk Storage

Type of Unit	Type of Storage	Minimum	Maximum
		ft^2	ft^2
2 BR	Int.	24	70
	Ext.	24	70
3 BR	Int.	24	80
	Ext.	24	80

9.8 MAJOR ZONES

9.8.1 LIVING AND DINING

The living room should have direct access to the front entrance vestibule and to the dining area without passing through another room. When circulation is required along the perimeter of the space or between areas in open plans, minimum circulation space of 3-feet 0-inches shall be added to the required minimum room dimension.

a) The dining area may be an extension of, or an "L" off the living room.

b) The dining area shall be directly accessible from the kitchen without passing through another room.

c) The kitchen shall provide an efficient work triangle. A base cabinet, minimum 15 inches wide, shall be provided on the handle side of the refrigerator. The range shall not be located adjacent to the refrigerator, in a corner, adjacent to a passageway, or under or within 1 foot either side of a window opening. The dishwasher shall be installed adjacent to the kitchen sink. Provide a backsplash behind

the range, extending to the underside of the range hood, finished to match the countertop or range and the range hood.

d) Provide auxiliary dining areas in the form of table space in the kitchen or in a family room adjacent to, or as an extension of the kitchen. The auxiliary dining area shall not be located in the living or dining rooms.

e) In the kitchen, shoe molding (1/4 round) is required at all base cabinets where they meet the floor surface.

f) A Pantry is a desired feature. Also see paragraph {AM#0003} 9.20.3 entitled "Storage and Countertop Requirements."

g) Fireplaces are prohibited in the housing units.

h) The living room is required to have a future ceiling fan roughed-in with circuits for fan and light, wall mounted switches for fan and light and a properly braced {AM#0003} _____ mounting box {AM#0003} for ceiling fan.

9.8.2 FAMILY ROOM

Provide a separate family room, adjacent to and contiguous with the kitchen, for all three-bedroom units. A separate family room is desired, but not required for all two-bedroom units.

9.8.3 BEDROOMS

Bedrooms shall be designed to accommodate king-size beds in master bedrooms and double beds in the other bedrooms. Each bedroom shall have a clothes closet (see Table 9-5 for minimum sizes) with shelf provided. Each bedroom shall be accessible without passing through another bedroom. Design consideration shall be given to the movement of oversized furniture in and out of the bedrooms. Each bedroom shall be required to have a future ceiling fan roughed-in with circuits for fan and light, wall mounted switches for fan and light and a properly braced {AM#0003} _____ mounting box {AM#0003} for ceiling fan.

9.9 MINOR ZONES

9.9.1 BATHROOMS

Emphasis shall be placed on size, furnishings, layout, and privacy. Direct access to a bathroom from the master bedroom is required for three-bedroom units. Compartmented bath design, for family and guest use, is encouraged. Determine the minimum number of bathrooms based on Table 9-7. No bathroom features (sink and mirrors) are to be located in the master bedroom but shall be in the master bathroom. All full bathrooms shall have a wood linen closet with 12-inch minimum nominal depth shelves. See Table 9-5 for minimum width requirement.

Table 9-7
Bathroom Requirements

Number of Bedrooms	Number of Full Bathrooms
2 BR	1
3 BR	2

9.9.1.1 Full Bath

A full bath shall contain a water closet, lavatory and a tub with shower assembly (Note: Tub with shower assemblies shall not be placed under windows). One full bath in each housing unit shall be directly accessible from a hallway without having to pass through another room. Tubs with shower assemblies shall include a shower rod. Sliding shower doors are prohibited.

9.9.1.2 Half Bath

A half bath is desired as a betterment (see Table 1-2) in 2-bedroom housing units, in addition to the minimum required bathrooms listed in Table 9-7. A half bath consists a lavatory and a water closet.

9.9.1.3 Lavatories

Provide lavatories mounted in 2-feet wide (minimum) countertops, with vanity bases. In master bedroom areas provide double sinks in bathrooms. Countertops shall be cultured marble with a minimum 4-inch high back splash. One-piece molded countertops/basins are not permitted. See paragraph 11.7 for lavatory requirements.

9.9.1.4 Accessories

Bathroom accessories may be surface mounted or recessed, of non-corrodible metal, and shall include towel bars totaling not less than 42 inches for a full bath and not less than 30 inches for a half bath. Accessories shall also include a mirror, toilet paper holder, 2 bathrobe hooks, and toothbrush and tumbler holder.

Medicine cabinets are not desired. Functionality of medicine cabinet will be provided by shelf space within required linen closet.

9.9.1.5 Exhaust Fans

Exhaust fans shall be switch operated separately from the lights and shall be ducted directly to the exterior of the building. See Part 13 for additional requirements.

9.9.2 LAUNDRY WASHER AND DRYER

Laundry washer and dryer space shall be in a separate utility room for three-bedroom units. If utility room and interior storage are combined into one space, do not count this area in the calculation of NSF. In two-bedroom units, provide a separate non-enclosed space for the washer and a separate non-enclosed space for the dryer between the kitchen and the garage. These spaces (alcoves) for the washer and dryer shall face each other with an adequate circulation space between. Bi-folding doors are prohibited. Dryer vent shall vent through an exterior wall and shall not be visible from the street (see paragraph 13.7).

9.9.2.1 Cabinets

A cabinet with 12-inch minimum nominal depth shelves is required above the washer and the dryer. Cabinets shall be custom grade and painted or pre-finished.

9.9.2.2 Door Clearance

Minimum door width to utility room, when open, is 2 feet-8 inches, except within handicapped units where this width shall be increased to 3 feet. Swing door is preferred, but shall not conflict with operational space in front of washer/dryer appliances.

9.9.3 CLOSETS

Closets shall provide the minimum widths indicated in Table 9-5. A broom closet shall be provided convenient to the kitchen, and a coat closet shall be located in the entry hall.

9.9.3.1 Master Bedroom Closet

A walk-in style clothes closet is preferred, but not required, in the master bedroom. The closet shall be provided with a door.

9.9.3.2 Closet Shelving

Closets (except linen closets) shall be equipped with a single 12-inch deep shelf and a clothes hanger rod. Linen closets shall be provided with at least four full-depth shelves. Closet shelving and rods in excess of 4 feet shall have center supports. Shelves and supports shall be capable of carrying 35 lbs/ft. Closet shelving shall be minimum ¾-inch thick solid wood or plywood. Factory finished welded wire shelving is prohibited.

9.9.3.3 Closet Doors

Closet doors should be located to permit placement of furniture in the corners of the rooms by providing an 18-inch return adjacent to a furnishable wall. Wall closet width shall not extend beyond either doorjamb more than 20 inches. All closet doors shall be hinge-type doors. Accordion, sliding and bi-fold doors are not permitted.

9.9.4 BULK STORAGE

Provide each housing unit with interior and exterior bulk storage space meeting the minimum requirements of Table 9-6. Provide interior storage in a separate room. Provide exterior {AM#0003} bulk storage in, or adjacent to, the garage. {AM#0003} Exterior bulk storage slab elevation shall be 4 inches above garage slab elevation. A separate storage area for the trash containers shall be provided in the garage, near the garage door. The trash container area shall be large enough to hold two standard garbage cans and one recycle container (18 inches wide by 26 inches long by 14 inches tall).

a) Bulk storage space shall be at a minimum 4 feet in depth and a minimum clear height of 6 feet-6 inches.

b) Provide a minimum of three nominally 12 inches deep shelves with a combined length of 24 feet within each bulk storage area (both exterior and interior).

c) Common walls and ceilings between adjacent storage areas shall be finished on both sides.

9.9.5 GARAGES

Provide an attached single-car garage for each housing unit with 2 car option for all units per the Price and Proposal Schedule. Detached garages are prohibited. {AM#0003} A minimum of 80% of garages shall have side vehicle entry doors that do not face the street. {AM#0003} Garages facing the street are discouraged but will be allowed for a maximum of 17 living units to facilitate cul-de-sac layout, etc. Trash area in garage shall be in addition to the required car storage area. Refer to Table 9-3 in this section for garage minimum dimensions. Set the garage slab {AM#0003} and mechanical room slab elevations a minimum of 4 inches below the level of the finished floor for the living space. {AM#0003} _____. Slope slab to drain out the garage door. Garage shall have a 4-inch high, 3 ½ foot deep concrete tire bumper along the entire length of the interior back wall of the garage. This change in elevation can be provided by the 4-inch drop from finished floor elevation of the living space to the garage floor elevation.

Garages for ADA units shall have a cast-in-place concrete ramp from the living space to the garage finished floor elevation. Ramp shall not interfere with access to a parked vehicle in the garage (also see paragraph 9.2). The minimum required garage area stated in Table 9-3 may be increased for ADA units to accommodate circulation with ramp. The tire bumper is not mandatory in the garage of ADA units.

9.9.5.1 Doors

Garage doors shall be insulated with steel sandwich panel SDP-38 by Phoenix or approved equal, with pre-finished sides, 26-gauge embossed pebble-grained textured acrylic polyester coatings on exterior and hardware that can be opened and locked from inside and outside of the garage. Garage door shall be insulated to approximately R-8. Garage door shall not have windows.

9.9.5.2 Door Opener

Garage door shall be manually operated. Contractor shall provide a pre-wired electrical outlet at the ceiling for a future garage door opener. Also see Part 12 of this section for additional requirements..

9.9.6 FRONT ENTRY

9.9.6.1 Mailbox

A mailbox shall be located on the exterior of the front entry of each housing unit. A through-door mailbox is prohibited.

9.9.6.2 Building Signage

Each housing unit will have a 3-digit number visible from the street, located near the front entry. See Paragraph 14.6.2. House numbers shall be 3-inch to 6-inch high numbers on a lighted fixture located in such a position as to be easily seen from the street. Signage house numbers shall be an energy efficient lighting with the following specifications: (a) Housing lens or diffuser - Thermoplastic, recognized component polycarbonates. (b) Frame sleeves - Thermoplastic recognized component ABS resin, U.V. stabilized. (c) Number plate translucent white thermoplastic recognized component polycarbonate U.V. stabilized. (d) Back plate – Pre-painted white steel A/S/1010/Thickness 0.0315. (e) Photocell - U-shaped mounting bracket which secures to back plate by a snap fit. (f) Socket assembly must be UL listed.

9.10 INTERIOR FINISHES

9.10.1 WALLS AND CEILINGS

Provide 5/8-inch, gypsum wallboard (gypsum board finish level #4) and light orange peel texture finish. Water-resistant wallboard shall be used in wet areas such as bath (as a minimum finish) and utility rooms. Interior finish shall have a flame-spread rating of 25 or less and a smoke-developed rating of 50 or less when tested in accordance with ASTM E84.

The color, texture and pattern selections for the finishes of the housing units shall provide a warm, comfortable, easily maintainable and functional environment for the occupants. Coordination of finish colors is necessary for a cohesive design. The design should include neutral colors that accommodate the varied occupant's furnishings. It is desirable for ceilings to be a lighter shade of white than the walls. Provide a painted wood base throughout the living areas of the housing units. Plastic laminates shall have patterns that are mottled, flecked or speckled with a mar-resistant finish, such as Formica's "Crystal" finish.

Ceiling heights higher than those specified in Table 9-2 for the kitchen, living room, family room and dining room are preferred.

All receptacle boxes and electrical switches prior to gypsum wallboard taping shall be masked to prevent gypsum wallboard cement from entering electrical boxes or touching sheathing on electrical sheathed cable.

Due to severe local problems with termite infestations, exterior and interior wall framing shall be treated wood or metal studs. See Part 10 for wall framing and sheathing requirements.

Garage ceiling and all exterior garage walls are not required to be insulated.

9.10.2 CARPET

Carpet shall meet the minimum requirements outlined in ETL 00-6 AIR FORCE CARPET STANDARD (http://www.afcesa.af.mil/Publications/ETLs/ETL00-6Final.pdf). Carpet color shall be neutral, such as beige or taupe, and patterns are to be avoided. Grey colored carpeting is prohibited. Carpet type shall be twisted loop and shall have a minimum 7-year limited warranty against soiling and liquid spills, and minimum 7-year wear warranty. Carpet fiber shall be 100% continuous filament nylon or 100% PET polyester. Primary backing shall be polypropylene. Minimum pile density rating shall be 4500 and minimum face weight shall be 28 ounces per cubic yard. Specify yarn that is branded by the fiber producer, 6 or Nylon-6 with a soil and stain resistant finish. Minimum gauge shall be 1/8. Provide 3/8-inch to ½-inch high-density polyurethane foam underlayment that meets HUD Use of Material Bulletin 72A HUD Building Product Standard and Certification Program for Carpet Cushion. Carpet must pass the Department of Commerce (DOC) FF 1-70 Pill Test (7 passes from 8 specimens) and the requirements of NFPA 101, The Life Safety Code. Carpet shall comply with 16 CFR 1630 and have a minimum average critical radiant flux of 0.45 watts per square centimeter when tested in accordance with ASTM E 648. Carpet shall be installed according to the manufacturer's instructions.

9.10.3 RESILIENT FLOORING

Vinyl composition tile (VCT) shall conform to ASTM F 1066, Class 2 (through pattern tile), Composition 1, asbestos-free. Tile shall have the color and pattern uniformly distributed throughout the thickness of the tile. VCT shall be provided as a minimum floor finish in main entry area, kitchen, bathrooms, washer/dryer alcove or utility room, and interior storage spaces, see Table 9-8. {AM#0003} Sheet vinyl is prohibited.

9.10.4 FLOOR BASE

Provide a painted wood (semi-gloss finish) base throughout the living areas of the house with carpet or VCT flooring. A stained base is prohibited. Where applicable, provide a ceramic tile base throughout the areas of the house with ceramic tile flooring.

9.10.5 CERAMIC TILE

Ceramic tile may be provided as a floor finish betterment in lieu of VCT, as indicated in Table 9-8. A mottled or speckled, glazed, 8 inch by 8 inch, ceramic floor tile shall be used. Ceramic tile shall conform to ANSI AI37.1, moderate to heavy grade only. A medium to dark toned grout which coordinates with the floor tile is required to avoid a stained or soiled appearance. Grout shall be sealed.

Ceramic tile may be provided as a wall finish betterment in bathrooms, as indicated in Table 9-8. Provide ceramic wall tile patterns appropriate to room size and shape. Accent tile color shall be another neutral shade that coordinates with the dominant tile color.

9.10.5.1 Bathtub Wainscot

Provide a water impervious wainscot, to a minimum of 72 inches above finished floor, around all bathtubs and showers. Bath and shower wainscot shall be a 3-piece panel system. One-piece tub/shower/wainscot units are prohibited. If ceramic tile is provided in bathrooms, it shall not be used as a tub surround.

9.10.6 PAINTING

Finishes shall be lead free. Interior surfaces, except factory pre-finished material, shall be painted a minimum of one prime coat and two finish coats . Walls and ceilings in kitchen, baths and utility rooms shall be painted antique white or off-white. All trim shall be painted white.

9.10.7 INTERIOR FINISHES

a) Carpet shall not be installed in kitchens, baths, utility rooms, washer/dryer alcoves or entry areas. Provide floor space at all exterior doors with VCT or ceramic tile finish.

b) Concrete masonry is a prohibited interior finish.

c) Vinyl wall covering or wallpaper is prohibited.

d) Sprayed-on acoustical ceiling finish is prohibited.

e) Wood floors are prohibited.

f) Accents of stained woods, and built-in features, are prohibited.

Table 9-8
Wall, Ceiling And Floor Finish Minimums And Betterments

Functional Area	Minimum Floor Finish	Desired Floor Finish (Betterment)	Minimum Wall Finish	Desired Wall Finish (Betterment)	Ceiling
Main Entry Hall	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Hall	Carpet (1)	N/A	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Kitchen (3)	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (4), (1)	N/A	Light texture (5)
Living Room	Carpet (1)	N/A	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Family Room	Carpet (1)	N/A	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Bedrooms	Carpet (1)	N/A	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Bathroom (3)	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (4), (1)	Ceramic Tile	Light texture (5)
Tub/Shower	N/A	N/A	3-piece panel system (4), (1)	N/A	Light texture (5)
Other Entry	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
Washer & Dryer Alcoves (3)	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (4), (1)	N/A	Light texture (5)
Utility Room (3)	VCT (1)	Ceramic Tile	Textured & Painted Gypboard (4), (1)	N/A	Light texture (5)
Garage	Concrete	None	Gypboard - Tape & Bed only (1)	Textured & Painted Gypboard (4)	Gypboard - Tape & Bed only
Mechanical Rm.	Concrete	None	Gypboard - Tape & Bed only (1)	N/A	Gypboard - Tape & Bed only
Interior Storage	VCT (1)	N/A	Textured & Painted Gypboard (4), (1)	N/A	Light texture (6)
Exterior Storage	Concrete	N/A	Gypboard - Tape & Bed only (1)	Textured & Painted Gypboard (4)	Gypboard - Tape & Bed only
Closets	(2)	N/A	Textured & Painted Gypboard (5), (1)	N/A	Light texture (6)
{AM#0003} Dining Room	{AM#0003} VCT (7) Carpet (8)	{AM#0003} Ceramic Tile N/A	{AM#0003} Textured & Painted Gypboard (5), (1)	{AM#0003} N/A	{AM#0003} Light texture (6)

NOTES:
(1) Government will allow ONLY minimum or betterment if listed.
(2) Match flooring finish in adjoining space.
(3) Water resistant gypboard shall be used in kitchens, baths, utility rooms and washer/dryer alcoves
(4) Paint finish is semi-gloss latex.

(5) Paint finish is satin.
(6) Paint finish is flat.
{AM#0003} (7) If Dining Room is separate from Family Room, VCT is minimum finish.
{AM#0003} (8) If Dining Room is a part of a great room concept, carpet is minimum finish.

9.11 ROOFING AND DRAINAGE

9.11.1 ROOF SLOPE

Provide roof slopes for all housing units including garages and covered patios as shown in Table 9-9. Provide approximately half the housing units with gable end roofs and half the housing units with hip roofs. Distribute the roof types randomly throughout the project site.

Table 9-9
Roof Slopes

Roof Types	Rise	Run
3-Tab shingles with 25-year warranty	4 min., 5 max.	12

9.11.2 ROOF TRUSSES

Roof trusses shall be constructed of treated wood or steel members.

9.11.3 ROOF WATER

Gutters with leaf guards and downspouts shall be provided for all roof areas. Construction will be heavy wall, seamless aluminum (thickness = 0.032 inch). Roof water shall be diverted away from entrances. Prefabricated concrete splash blocks shall be provided under downspouts. Gutters and downspouts shall be factory finished to coordinate with building color and materials and shall be sized and designed in accordance with the SMACNA manual. Gutter support by spike and ferrules is not permitted. Attachment shall be by straps attached directly to the roof structure. Downspout extensions emptying onto concrete splash blocks shall be provided.

9.11.4 ROOF SURFACE

Roofing shall be limited to the following:

a) Minimum of 3-tab shingles containing a 25-year product warranty. Contractor shall install shingles in strict accordance with the manufacturer's installation instructions. Contractor shall warrant roof system from leaks for a period of five (5) years.

b) Roof sheathing to be 5/8-inch treated exterior grade plywood. Waferboard or pressed wood roof sheathing are not permitted.

c) Contractor shall avoid the use of dark colors for roof surface. Lighter colors are desired for increased unit energy efficiency.

d) Galvanized metal valleys are required as base bid. See Table 1-2 for betterment.

e) Patios shall be covered and shingled.

f) Parapet walls are prohibited.

9.12 EXTERIOR FINISHES

Emphasis shall be placed on low maintenance and durability for exterior finish materials. Materials shall be residential in size, scale, and texture. Exterior finish materials for garages will match the primary housing unit. Submit a minimum of 3 exterior color and finish schemes in the earth tones range for all the housing units. Each structure in turn should have a minimum of 3 colors, and a maximum of 4. The colors should be selected so that no two adjacent structures are colored alike, yet the selected colors of one should harmonize with its neighbors. For other exterior items, all building exterior corner trim, corbel and dentil trim, soffit and fascia, garage doors, window and garage head jamb and sill trim shall be painted, or pre-finished.

9.12.1 FACE BRICK

Brick shall conform to ASTM C216, Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale). Provide brick cap and flashing for all offset brick veneer. For grade beam design, the brick shall run a minimum of one course below the finished floor and shall be flashed at that level.

The housing units shall have a non-bearing brick masonry veneer. {AM#0003} All gabled-ends shall also have non-bearing brick masonry veneer. No other exterior cladding materials are acceptable. The Contractor will have the option to use either treated wood or a light-gauge metal stud wall system for the framing system. Contractor shall use 5/8-inch gypsum board sheathing and damp proofing for the exterior envelope. Provide termite shield at bottom of exterior walls. Also provide running bond pattern, joint reinforcement, wall ties, weeps, {AM#0003} _____ and concave mortar joints. {AM#0003} A vapor permeable weather-resistive barrier shall be installed on the exterior side of the sheathing in the cavity between the sheathing and the backside of the brick.

9.12.2 {AM#0003} DELETED

9.12.3 PAINTING

Exterior surfaces requiring painting shall be kept to a minimum, but where painting is absolutely necessary, exterior surfaces shall receive a minimum of one prime coat and two finish coats of paint. Wood trim frames, etc., shall be back primed.

9.12.4 EXTERIOR SOFFITS

Exposure of roof framing and underside of roof/floor decks are not permitted. Exterior wood materials that require field finishing are not permitted. {AM#0003} Roof soffits, patio soffits, roof edge trim, fascias, {AM#0003}_____, downspouts and gutters shall be factory color finished steel or aluminum. Exterior soffits shall be preformed and pre-finished metal with vented holes. Attic ventilation shall not be provided using only vented panels. A powered ventilator and vented panels shall be used together. See paragraph 13.9 for powered ventilator requirements. Vented panels shall be evenly spaced along the eaves. Cement asbestos ceilings or soffits are not permitted.

9.12.5 PATIOS

Patios shall be sloped to drain away from the residence and have a broom-finished concrete floor surface. Patios shall be covered and shingled. For all units, the patio slab shall be 4-inches below the finished floor elevation of the living space. For ADA units, a cast-in-place concrete ramp is required between the living space and the patio. The patio space lost due to the ramp shall be off-set by increasing the patio area for ADA units.

9.13 GLAZED OPENINGS

Windows and glazed door (50 percent or more glass) units shall meet the following standards and must be certified by an independent testing laboratory. In addition, windows must meet requirements of Section 9.6. Skylights are prohibited. The Contractor shall provide the manufacturer's certification that the windows/glazed doors provided meet the test requirements listed below.

9.13.1 REQUIRED TESTS

Hung window units will meet a National Fenestration Rating Council (NFRC) design pressure rating of DP 25. Evidence of passing the following specific tests and minimum standards are required to achieve these design pressure standards.

9.13.1.1 Structural Testing

Using ASTM E330 test results shall demonstrate no glass breakage, damage to hardware, or permanent deformation that would cause any malfunction or impair the operation of the unit. Residual deflection of any member shall not exceed 0.4 percent of its span. Hung windows shall be tested at pressures of 37.5 lb/ft^2.

9.13.1.2 Operating Force

The force necessary to unlatch and open window units shall not exceed 30 lb.

9.13.1.3 Air Infiltration

Using ASTM E283 leakage rate shall not exceed 0.25 $ft^3/min/ft^2$ at a test pressure of 1.57 lb/ft^2.

9.13.1.4 Water penetration

Using ASTM E547, no leakage shall be evident when tested in three, five-minute cycles with a one-minute rest period between cycles at 3.75 lb/ft^2.

9.14 BUILDING THERMAL ENVELOPE

9.14.1.1 U-Values and R-values

U-values and R-values shall comply with the Thermal Characteristics Requirements below in accordance with the standards set forth in TI{AM#0003}801-02 (www.hnd.usace.army.mil/techinfo/ti.htm) and TM 5-785 / AFM 88-29 "Engineering Weather Data" (www.usace.army.mil/inet/usace-docs/armytm/). U-values shall be calculated using ASTM E1423 and NFRC 100-91.

Table 9-10
Thermal Characteristic Requirements [1,2]

Weather Region	Wall[3] R-Value	Ceiling/Roof R-Value[4]	Door R-Value[5]	Glazed Openings U-Value [6]	
				Window	Door
11	13	38	5	0.50	0.38

NOTES:
1. R-values are in square foot-degrees F/BTUH. (R=1/U)

2. R-values listed represent the minimum acceptable insulation values for each construction type. Listed U-values represent the maximum thermal conductance allowed for windows and doors.
3. Requirements for opaque exterior walls.
4. For buildings with ventilated attics, no credit may be taken for the roof construction. R-value shall be computed for construction between conditioned space and ventilated attic or building exterior.
5. Requirements for opaque doors in exterior walls (insulated metal).
6. Window requirements for double pane, low-emissivity glass windows U-values as rated by the National Fenestration Rating Council (NFRC). Solar Heat Gain Coefficient shall be limited to 0.55.

{AM#0003} 7. Unless noted otherwise all values in Table 9-10 are component values.

9.14.1.2 Thermal Insulation.

Thermal insulation shall have a flame-spread rating of 25 or less and a smoke-development rating of 50 or less, exclusive of the vapor barrier, when tested in accordance with ASTM E 84. A vapor barrier shall be provided on the warm-in-winter side of exterior wall and ceiling insulation. {AM#0003}_____.

9.14.1.3 Air Infiltration

{AM#0003}
_____.

A blower door test, performed in accordance with ASTM E 779, Measuring Air Leakage by the Pressurization Method, shall be performed on {AM#0003} the prototype buildings. No other buildings require a blower door test.
_____
_____.

Before beginning the test, all combustion devices shall be turned off, and all intentional openings in the building envelope (dryer vent, bathroom and kitchen exhaust, etc.) shall be sealed. All doors and windows shall be closed and latched.

To pass the blower door test, the building shall have an air tightness rating within the range of 3 to 4 ACH at 0.2 inch of water. The Contractor shall {AM#0003} _____ be responsible for all labor and materials required to reduce air leakage to within acceptable parameters. All testing shall be performed by a firm certified by the Associated Air Balance Council, the National Environment Balancing Bureau, and licensed by the State of Texas to perform such tests.

Any measures taken to reduce the air leakage to acceptable values shall be permanent, and shall be implemented on all similar housing units.

9.14.2 GLAZED DOORS

Glazed doors shall have insulated steel, or thermally broken aluminum frames conforming to the above requirements. Finish shall be factory applied and conform to 44-C-22431 in accordance with the requirements of the National Association of Architectural Metal Manufacturers (NAAMM) Metal Finishes Manual. Doors shall have interior operated latch, and securing pin or throw-bolt in frame.

9.15 WINDOW UNITS

9.15.1 ALUMINUM WINDOWS

Aluminum windows shall be of standard stock dimension and design. Weather-stripping shall be factory applied. Windows shall conform to the requirements of ANSI Standard 302.9 - 1977 (latest edition) for the type specified

and shall include a vinyl thermal break. Window units shall be provided with an AA-C-22431 anodized finish in accordance with the requirements of the National Association of Architectural Metal Manufacturer's "Metal Finishes Manual". Color shall be dark bronze selected from the window manufacturer's standard colors.

9.15.2 INTERIOR WINDOW SILLS

Interior side of window sills shall be paint-grade, solid wood with minimum thickness of 3/4 inch. Stained/varnished wood is prohibited.

9.15.3 SINGLE-HUNG WINDOWS

Windows shall be single-hung {AM#0003}_____. Window sash shall operate vertically with the weight of the sash offset by a counterbalancing mechanism mounted in window to hold the sash stationary at any open position, and shall be complete with two locking devices to secure the sash in the closed position.

9.15.4 THERMAL STANDARDS

Aluminum windows and doors shall conform to AAMA 1504-83, "Thermal Performance of Residential Windows and Sliding Glass Doors". The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant.

9.15.5 GLAZING

All door and window glazing shall be tinted, high efficiency, low E, double-glazed and insulated glass. Double-glazed window units shall be hermetically sealed. Provide a manufacturer's 10-year written warranty on the hermetic seal against condensation. See Section 9.6 for other glazing requirements.

9.15.6 TEMPERED SAFETY GLASS

Where glass extends to floor or to within 18 inches of floor, it shall be fully tempered safety glass.

9.15.7 OBSCURE GLASS

Provide double-glazed, patterned or obscure glazing for all bathroom windows.

9.16 SCREENS

Wire mesh fabric, aluminum screens and aluminum frames shall be provided at all operable sashes. Screens shall be black in color, shall be of window manufacturer's standard design, and shall conform to AAMA 1002.10, Voluntary Specification for Aluminum Insulating Storm Products for Windows and Sliding Doors.

9.17 WINDOW TREATMENTS

Provide 1-inch metal blinds at all windows. Color shall be coordinated with wall color.

Drapes or curtains are not permitted. Shades are not permitted.

9.18 DOORS

See Table 9-10 THERMAL CHARACTERISTIC REQUIREMENTS for thermal performance requirements for exterior doors. See paragraph 9.19 for Door Hardware.

9.18.1 ENTRANCE DOORS

The housing unit primary entrance door and the door between garage and living units shall be 3 feet in width by 6 feet 8 inches in height by 1-3/4 inch thick, 16 gauge, metal with fibrous insulation, and decorative panel treatments embossed into both face sheets. Other housing unit entrance doors should meet this requirement but may be of lesser width. Primary entrance door shall have glazing provided not to exceed a 6-inch by 6-inch area. Metal doors shall conform to ASTM E 152, NFPA 252. The perimeter of exterior door frames shall be sealed airtight to the exterior wall construction with sealant. All exterior door frames to be painted hollow metal. Entrance doors shall meet the requirements specified herein, or as specified in Section 9.6 SOUND ATTENUATION, whichever is more stringent.

9.18.2 STORM DOORS

An aluminum storm door shall be provided for all housing unit exterior hinged doors. The middle panel of the storm door shall have a multi-track system containing both a screen and a vertically sliding glass pane. Frames shall be a minimum of 1 inch thick and 5 inches wide aluminum clad with heavy-duty extruded aluminum. Screening materials shall be 18-inch x 18-inch aluminum mesh screen and black in color. All storm doors shall have closers provided.

9.18.3 MECHANICAL AND STORAGE ROOM DOORS

Exterior bulk storage and mechanical room doors shall be a minimum of 3 feet in width by 6 feet 8 inches in height by 1-3/4 inches thick, 16 gauge, painted hollow metal flush type. Metal doors shall conform to ASTM E 152, NFPA 252. Mechanical room doors shall be insulated and weather-stripped.

9.18.4 INTERIOR DOORS

Interior doors shall be hollow core, flush plain wood doors, 6 feet -8 inches in height by 1-3/8 inch thick. Wood doors and trim shall be painted. Door frames to be solid wood construction, paint grade. Closet doors shall be hinge type. Accordion, sliding and bi-fold doors are prohibited.

9.18.5 PATIO DOORS

Patio doors shall be in-swinging, hinged, 36-inch wide, double doors with windows and muntins (French type) meeting the requirements of NWWDA I.S. 8. Patio Door and I.S. 2 Window Rating Grade 60. Patio doors shall be metal construction with a thermal break. Individual lites shall be glazed with 1/2-inch insulating glass units constructed of two panes of 1/8-inch tempered glass with a 1/4-inch air space. Glass shall be sealed in door and back bedded with bedding compound or glazing beads. Sliding glass doors will not be permitted. Wood molding shall be provided around the interior frame of the door and shall be painted. Blinds are not desired at patio doors.

9.19 BUILDERS HARDWARE

Hinges, locks, and latches will comply with the specifications indicated in Table 9-11, and the following subparagraphs:

Table 9-11
Hardware Specifications

Hardware Type/ Specification	Specific Requirements
Hinges ANSI/BHMA 101	Hinges shall be 4 inches x 4 inches at exterior doors, and 3-1/2 inches x 3-1/2 inches at interior doors. Hinges to be ball bearing type with a base material of brass or bronze, except as required for fire rated door.
Locks & Latches ANSI/BHMA A156.2	Series 4000, Grade 2, at exterior doors. Grade 2 at interior doors. Provide trim of wrought brass, aluminum, or stainless steel.
Auxiliary Locks ANSI/BHMA A156.5	Series 4000, Grade 2. Provide matching trim of wrought brass, aluminum, or stainless steel.
Interconnected Lock & Latches ANSI/BHMA A156.12	Grade 2. Provide matching trim of wrought brass, aluminum, or stainless steel.

9.19.1 LOCKS AND KEYS

Keys: Lock cores shall be removable type keyed in sets or subsets as scheduled. Lock cores shall be seven (7) pin. Cores shall be pinned for an A-3 (.018 differential) type system. Lock cores shall be keyed to existing base master keying system in sets or subsets in accordance with the approved schedule below. Dyess' existing master key system is by "BEST." Locks shall be furnished with the manufacturer's standard construction cores and key system. Permanent cores and keys including a typewritten key codes/biting schedule shall be sent by the lock manufacturer directly to Dyess Air Force Base by registered mail or other approved means. The address is:

7 CES/CEOL2
Attn: Locksmith
718 Third St
Dyess AFB TX 79607-1618

Keys for locks shall be stamped with change number and the inscription "U.S. Property - Do Not Duplicate." Dyess uses a "K" and "L" type keyway. Keys shall be supplied as follows:

Locks:	2 change keys each lock
Master keyed sets:	6 keys each set
Construction keys:	6 total
Blank keys:	One per lockset provided
A3 Key kit:	1 kit for each 100 locksets (or fraction thereof)

The keys shall be furnished to the Contracting Officer arranged in a container specifically designed for key control system storage in sets or subsets as scheduled.

Keying Schedule: Before any hardware is delivered, a proposed keying system schedule shall be prepared and submitted to the Contracting Officer for approval. The lock manufacturer and/or their supplier must be furnished by the contractor with this project number, contract number, title, street address, and building number(s) before correct schedule can be developed. The base Locksmith shall be contacted (address above) to secure existing key codes/bitting if necessary to successfully master key new work under this contract.

Locksets and Latchsets: Locksets and latchsets shall meet ANSI/BHMA A156.2, Series 4000, Grade 2, bored type with roses. Handles/levers shall be provided on required handicapped accessible doors only. Locksets and latchsets shall be capable of accepting "BEST" removable cores. Other hardware manufacturers ("FALCON") have recently successfully demonstrated full capabilities of providing totally and completely interchangeable cores (round top/

unslotted) including pins, springs, etc, with Dyess' existing "BEST" system and can provide locksets and latchsets which accept same.

Contracting Officer shall provide master key codes to hardware manufacturer.

9.19.2 WEATHERSTRIPPING

Weatherstripping and exterior thresholds. Weatherstripping for heads and jambs of exterior doors shall be spring tension type, or cold rolled spring bronze, zinc, or other nonferrous metal. Vinyl magnetic weatherstripping is acceptable for metal doors. Exterior thresholds shall be nonferrous metal.

9.19.3 APPLICATIONS

Locks and hinges shall be applied as follows:

a) Exterior hinged doors shall have 1-1/2 pair of hinges and a lockset. All exterior doors will also have a keyless dead bolt lock provided.

b) Patio doors shall have 2 pair of hinges, a lockset and a pair of lever extension flush bolts top and bottom, with bottom bolt into dust proof strike at threshold.

c) Each windowless entrance door will have a viewer mounted at eye level.

d) Interior doors shall have 1-1/2 pair of hinges and latchset with ANSI/BHMA A156.2, F75 or F76 operations.

e) Doors in fire-rated walls (from housing unit to garage) shall have 1-1/2 pair of steel ball-bearing hinges, lockset, auxiliary lock or interconnected lock and latch.

9.19.4 NAMEPLATE HOLDERS

Extruded aluminum nameplate holders shall be provided for each family housing unit. Size of nameplate holders shall be 1-3/4 inches by 26 inches and shall be slotted to receive existing plastic or metal letters inserted into the slot.

9.20 KITCHEN/BATH CABINETS

9.20.1 KITCHENS

Kitchen design and layout shall be in accordance with the Air Force Family Housing Guide, Dec. 1995.

9.20.2 KITCHEN CABINETS

Kitchen cabinets shall be factory manufactured. Cabinets shall conform to the requirements of the Architectural Woodwork Institute (AWI) publication Architectural Woodwork Quality Standards, Guide Specifications & Quality Certification Program for "custom" grade kitchen and bathroom vanity cabinets, and the requirements of the National Kitchen Cabinet Association.

a) The finished material of exposed fronts and ends of cabinets, door and drawer fronts shall be natural stained solid hardwood or hardwood veneer plywood with a durable maintenance free protective finish.

b) Metal or plastic laminate cabinets will not be permitted.

c) Raised panel cabinet doors are required.

d) Top mounted center drawer guides will not be permitted.

e) Cabinet catches shall be magnetic or hinges shall be spring loaded.

f) In addition to the minimum requirements, accessories such as roll out trays, adjustable shelving, cutting boards and utensil dividers, etc., are desirable.

g) Cabinets and countertops shall have a flame-spread rating that does not exceed 200 when tested in accordance with ASTM E84 and ASTM E162, Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

h) Refer to Table 9-5 for minimum kitchen cabinet area requirements.

9.20.3 STORAGE AND COUNTERTOP REQUIREMENTS

Kitchens shall meet the minimum storage/countertop areas required per Table 9-4. Proposers shall submit calculations in accordance with Figure 4-24 and Figure 4-25 within Chapter 4 of the Air Force Family Housing Guide. Kitchen cabinet layouts shall utilize all inside corners for storage. A "Lazy Susan" type revolving shelving shall be used at least in one corner. A 12-inch wide cabinet with a minimum of two vertical dividers to serve as a cookie sheet and pan holder shall also be included in the cabinet design.

In addition to the minimum requirements, pantries in or adjacent to the kitchen for storage or packaged food and housecleaning equipment and supplies are highly desirable.

9.20.4 CABINET CONSTRUCTION

Frame members shall be mortised and tendoned, dove-tailed or doweled, and glued together. Brace the top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Wood cabinet materials and dimensions - Materials and minimum dimensions and thicknesses for cabinet construction materials shall comply with Table 9-12 and requirements below.

9.20.4.1 Lumber Products

a) Softwood lumber: PS 20 custom grade, moisture content 6 percent.

b) Hardwood lumber: PS 58, custom grade.

9.20.4.2 Sheet Materials

a) Hardwood plywood: PS-51 custom grade; core material of particle board, rotary cut Natural Birch, grade "A" finished side and grade "3" for back ply material.

b) Wood particleboard: composed of wood chips made with waterproof resin binders of 45 pound density sanded faces.

c) Softwood plywood: PS 1, custom grade, core material of particleboard; species of Douglas Fir.

Table 9-12
Kitchen Cabinet Specifications

Element Description	Specific Requirements
Frame Members	Per AWI.
Base Cabinet Toe Space	2-1/2 inches x 4 inches with 3/16-inch Oak face.
Cabinet Bottoms, Backs Ends, & Tops	Melamine finish over 3/4 inch plywood (except 1/4 inch plywood minimum at back). Brace bottoms with wood members glued in place.
Doors	Oak panel with oak face, stile and rail.
Drawer Slides/Guides	KV 1284 or approved equal solid stud acetyl roller, captive in one channel member, 100 pound/pair load capacity, side mounting, white color epoxy-coated cold rolled steel with positive stop. Lift-out disconnect "stay closed design".
Drawers	Oak face front. Conventional dovetail joint used to fasten side to back and front. All joints glued. All drawers and pull out shelves shall be mounted with side mounted slides.
Drawer Sides and Bottoms	Drawer sides shall be ½-inch thick plywood. Bottoms shall be ½-inch thick, spot-glued and set into members in grooves 1/4-inch deep with minimum 3/8-inch standing shoulder, fastened with glue blocks, except that at backs, it shall be glued and nailed to bottom edge at back.
Bumper Pads	Cork.
Shelves	3/4-inch industrial grade plywood with melamine top coat on both sides and hardwood edges. Steel supports of flush mounted angle with 1/4-inch diameter by 3/8-inch long on 2 inch centers. Shelf edges exposed to view shall be oak, rounded, filled, sanded, and finished.

9.20.5 COUNTERTOPS

Countertops shall be high pressure laminated plastic (0.043 inches for post formed tops and nominal thickness of 0.05 inches) with heat resistive adhesive, fully formed with a continuous sheet of plastic combining a no drip bull nose edge and an integral coved backsplash with a 4-inch minimum height. Backsplashes shall be provided at both back of counters and at side of counters where abutting a wall. The substrate for countertops shall be 3/4-inch thick particleboard.

PART 10 - HOUSING UNIT STRUCTURAL DESIGN

INDEX

10 HOUSING UNIT STRUCTURAL DESIGN

10.1 SECTION SUMMARY

General: The structural criteria established herein shall be used for structural loading, design and installation of all structural systems and foundations, including manufacturing, erection, and supervision, testing, and quality assurance of the completed installation of the housing units. All structural calculations shall be checked and initialed as such by a registered structural engineer other than the original design engineer. Refer to the Foundation Design Analysis contained in the Preliminary Geotechnical Report as prepared by the Corps of Engineers for all foundation requirements and recommendations. The structural work generally consists of design, using the DESIGN LOADS and DESIGN CRITERIA below, and of construction of but not limited to:

(1) Foundations.
(2) Retaining Walls.
(3) Load Bearing and Non-Load Bearing Walls.
(4) Vertical Framing Members.
(5) Horizontal Framing Members, including roof decks and diaphragms, roof beams and joists.
(6) Interconnection Details including all fastening requirements.
(7) Special Conditions, such as expansion, construction, and control joints, and changes in floor levels.
(8) Appendix provisions for architectural, mechanical, and electrical elements.
(9) Site fencing structure and foundations.

10.2 REFERENCES

Design methods and stress allowances or load factors for the various structural materials shall be in accordance with the current editions of the codes and specifications listed in the table below. Recommendations made in the codes, specifications and industry standards in this paragraph are requirements of this RFP, unless specified otherwise in this RFP.

American Concrete Institute (ACI 318-02), Building Code Requirements for Reinforced Concrete.

American Concrete Institute (ACI 302), Guide for Concrete Floors and Slab Construction.

American Institute of Steel Construction (AISC), Manual of Steel Construction, Load and Resistance Factor Design

American Institute of Steel Construction (AISC), Design of Cold Formed Steel Structural Members, Latest Edition.

American Plywood Association, "APA Design/Construction Guide".

American Welding Society (AWS), Structural Welding Code

Federal Manufactured Housing Construction and Safety Act (FMHCSS)

International Building Code 2000 (IBC).

Southwestern Division, Design Criteria Architectural and Engineering Instructions Manual (AEIM), October 2000 (http://www.swf.usace.army.mil/eandc/ec-a/2000aeim.html)

Preliminary Geotechnical Report (see Appendix 1 of this RFP)

10.3 DESIGN

10.3.1 GENERAL

The overall structural system shall be selected based on durability, maintainability, and cost-effectiveness. {AM#0003}_____. The lateral support system shall be selected from conventional industry standard systems and shall be compatible with the vertical load carrying system. The design drawings shall contain in the General Notes a list of the design loading criteria, a list of the strengths of the engineering materials used, the design soil values and any other data that would be pertinent to remodeling and/or future additions. Structural calculations to substantiate the structural design shall be submitted in accordance with the requirements of Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES.

10.3.2 DEAD LOADS

The structural system shall be designed and constructed to safely support all dead loads, permanent or temporary, including self weight, partitions, insulation, ceiling, floor covering, and all equipment that is fixed in position.

10.3.3 ROOF LIVE LOADS

Roofs shall be designed to support live loads, snow loads, including drifting snow, sliding snow, and rain on snow, and support wind loads including components and cladding in accordance with the IBC 2000 Edition. Snow loads, full or unbalanced, shall govern where such loading will result in larger members at connections. Other criteria is as follows:

(1) Basic Wind Speed - 90 mph.
(2) Minimum Roof Live Load - 20 psf.
(3) Ground Snow Load - 5 psf.

If the design roof snow loading is less than 20 pounds per square foot, a minimum roof live loading for construction and maintenance of 20 pounds per square foot shall be used for design of the structure. This roof live loading is in lieu of and not in addition to the snow loading. However, unbalanced snow loads, sliding and drifting snow (in particular areas), or wind loads may be the controlling load case for particular elements.

10.3.4 FLOOR LIVE LOADS

Living Space	40 psf
Exterior Porches and Corridors	60 psf
Stairs (Concentrated Load)	300 lb
Uninhabitable Attics without storage	10 psf

10.3.5 LATERAL LOADS

10.3.5.1 Horizontal Loads (Acting Inward and Outward)

The structural system wind design, including components and cladding, shall be designed in accordance with the {AM#0003} IBC 2000 based on the following criteria:

(1) Basic Wind Speed - 90 mph.
(2) Exposure "C".
(3) Important Factor - 1.0.

10.3.5.2 Seismic Loads

Seismic design for this project will be in accordance with the ACC Seismic Design Criteria for New Construction Memorandum dated 9 September, 1998 (See Appendices). This document states that the 1997 Edition of the National Earthquake Hazard Reduction Program (NEHRP) establishes the new seismic design criteria for all new Air Force projects. Dyess AFB is located within Seismic Design Category A, per 1997 edition of NEHRP. As such, no specific seismic design requirements exist for these housing units.

10.4 DESIGN CRITERIA

10.4.1 GENERAL

The design drawings shall contain General Notes which shall contain a list of the design loading criteria, a list of the strengths of the engineering materials used, the design soil values, a fastening schedule, and any other data that would be pertinent to remodeling and/or future additions.

Walls mostly below grade that are supported laterally by diaphragms at or near the top and bottom, shall be designed using loadings based on at-rest soil pressures.

Freestanding earth retained walls shall be loaded with active soil pressure and surcharge loading if present, and with this loading the vertical resultant shall be in the middle 1/3 of the footing base width. For this design, factors of safety for overturning and sliding shall be at least 1.2. Retaining walls shall be constructed of reinforced concrete only. Weep holes shall be provided in the wall to eliminate saturated soil conditions behind the wall.

Diaphragms shall have continuous chord members on all edges and shall have direct positive connection for transferring load to all members of the main lateral force resisting system.

Sheetrock wall covering shall not be used as a lateral resisting element of the lateral design.

10.4.2 MINIMUM FOOTING DEPTH

The minimum footing depth from bottom of footing to finish grade for frost penetration and/or earth cover shall be 18 inches unless noted otherwise.

10.4.3 FOUNDATION DESIGN

The foundation system shall be as indicated in the Foundation Design Analysis as contained in the Preliminary Geotechnical Report (see Appendix 1).

10.4.4 ROOF SLOPE

See PART 9, Table 9-10 of Section 01000 for slope requirements.

10.4.5 SERVICEABILITY

10.4.5.1 Foundation Settlement Strength

An adequate level of protection against structural failure due to uniform and/or differential foundation settlement or general shear shall be provided.

10.4.5.2 Vertical Deflection of Suspended Horizontal Framing Members

Building serviceability shall not be impaired by vertical deflections. The sum of the instantaneous vertical deflections due to live load plus long-term sustained load deflections shall not exceed the span divided by:

(1) 240 at roofs.
(2) 600 at masonry lintels for masonry walls.

10.4.5.3 Horizontal Deflection

Horizontal deflection shall not exceed the limits set forth in the IBC 2000 Edition when the structure is subjected to the required seismic or wind loads.

10.4.5.4 Ultimate Strength of Structural Elements

An adequate level of protection against structural failure under extreme loads shall be provided. The proposer shall check the usual loading conditions for normal factors of safety and the extreme loading conditions, if present, for appropriate (unusual) factors of safety to provide levels of protection appropriate for the conditions.

10.4.6 CONSTRUCTION TOLERANCES

Allowable variations from level, or specific slopes, shall be as follows:

(1) For overall length, or surface of 10 feet or less: plus or minus 1/8-inch.
(2) Up to 20 feet: plus or minus 1/4-inch.
(3) Up to 40 feet: plus or minus 3/8-inch.

10.4.7 DURABILITY

Structural components shall be protected from condensed moisture that could impair their structural adequacy through deterioration.

Special attention shall be given to protection for corrosion or oxidation of metals, decay of wood and wood base materials, spalling of concrete, leaching of mortar, and deterioration of adhesives. Prevention of these hazards shall be especially important.

The materials used in structural elements, components, and assemblies shall be resistant to or protected from damage by exposure to normal climatic conditions.

10.5 CONCRETE DESIGN

10.5.1 GENERAL

All concrete shall have a minimum compressive strength of 3000 psi at 28 days unless noted otherwise. All foundation walls and footings shall be constructed of reinforced cast-in-place concrete.

10.5.2 TESTING

Testing of concrete work shall be done at the proposer's expense by an approved independent testing laboratory.

10.5.3 FORMS

Materials for forms shall be plywood, metal, metal-framed, aluminum, reinforced fiberglass, or plywood-faced, to provide continuous, straight, smooth, exposed surfaces. Forms shall not be left in place.

10.5.4 REINFORCING MATERIALS

Reinforcing Bars: ASTM A 615, minimum Grade 40, deformed.

10.5.5 CONCRETE MATERIALS

(1) Cement: ASTM C 150, Type I-II Portland cement low alkali (0.6% or less).
(2) Fine Aggregate: ASTM C 33.
(3) Coarse Aggregate: ASTM C 33.
(4) Air-Entraining Admixture: ASTM C 260.
(5) Flowing Concrete Admixture: ASTM C 1017, Type 1 or 2.
(6) Calcium Chloride will not be permitted.
(7) Fly Ash: ASTM C 618, Class "F"; fly ash content shall not exceed 20 percent of cement content or 100 pounds of fly ash per cubic yard of concrete, whichever is less.

10.5.6 VAPOR BARRIER

Provide under all interior floor slabs. Polyethylene sheet not less than 6 mils thick. Provide 4-inch capillary water barrier under the vapor barrier.

10.5.7 CURING COMPOUND

Liquid type membrane-forming curing compound complying with ASTM C 309, Type I, Class A or B.

10.5.8 READY-MIX CONCRETE

Ready-mix concrete shall be in accordance with ASTM C 94.

10.5.9 FOUNDATION SYSTEMS

The foundation system shall conform to the minimum requirements for a "Ribbed-Mat Slab" foundation system as specified in the Preliminary Geotechnical Report (See Appendix 1). {AM#0003} Conventionally reinforced foundations are required; post tension construction is not acceptable in this application. Also see Section 02364A of the RFP for termite protection requirements.

10.5.10 CONDUITS AND PIPES

Horizontal runs of conduits and pipes will not be embedded in foundation ribs and slabs supported by ground. Vertical penetrations will conform to ACI 318-02. Aluminum conduit and pipe shall not be embedded in any concrete structure.

10.5.11 SLAB JOINTS

Slab crack control joints may be construction joints, expansion joints, or weakened plane joints consisting of plastic insert "T" strips (minimum depth shall be 1/4 depth of slab thickness) placed in the fresh concrete. Saw cut joints will not be allowed. Reinforcement will be interrupted at (2 inches clear each side) crack control joints. Bars shall be located at mid-depth or the slab, and starting 2 inches from the edge of slab. The ends of crack control and corners of isolation joints will meet at a common point so far as practical. Stop reinforcing at expansion joints and provide smooth slip dowels (minimum 1/2-inch diameter) across the joint (dowels shall be ASTM A 615 material, plain bars).

When thickened slabs are employed under column bases or partitions, crack control joints parallel to the thickened slabs shall be offset from the thickened areas.

Walls, when used or required for lateral resistance to wind or earthquake, shall be founded on a full foundation.

Reentrant corners in slabs will be reinforced with a minimum of one No. 4 bar at 45 degrees to the corner.

10.6 MASONRY DESIGN

Provide solid brick where cores in cored brick might be exposed.

Joints shall be 3/8-inch, tooled concave, Type "S" mortar.

Ties shall be corrugated galvanized steel, 22 gage minimum, length to extend to 3/4-inch from brick face. Space ties a maximum of 24 inches on centers vertically and 16 inches on center horizontally.

Installation of brickwork shall comply with the latest edition of the Brick Institute of America Technical Notes No. 28; Brick Veneer, New Construction.

10.7 STEEL DESIGN

10.7.1 STRUCTURAL STEEL DESIGN

The detailing of structural steel framing, if used, shall be complete including connections. All weld types, weld sizes, bolt layouts, bolt sizes, connection plates, members sizes and locations, and stiffener plates sizes and locations shall be shown.

All members, elements, and connections that are a part of the main vertical and/or lateral force resisting system must be completely detailed.

{AM#0003}_____.

10.7.2 STRUCTURAL COLD FORMED STEEL FRAMING DESIGN

Cold formed steel structural framing design shall comply with the American Institute of Steel Construction (AISC), Design of Cold Formed Steel Structural Members, Latest Edition, except as herein noted.

The detailing of cold formed steel structural framing, including connections, shall be complete. All welded connections, metal connectors, bolt layouts, bolt sizes, screw fastener patterns, and screw sizes shall be shown in details, notes and calculations. All members that are a part of the main vertical and lateral force resisting system must be completely detailed.

Walls, when used or required for lateral resistance to wind or seismic, shall be considered bearing walls.

10.7.3 STRUCTURAL VERTICAL WALL FRAMING

Structural vertical (load bearing and non-load bearing) wall framing shall be no less than 3-1/2 inches wide, C-shaped, at 16 inches on center maximum spacing. Framing for all exterior walls shall be 18-gage thickness minimum, and framing for interior walls shall be 20-gage thickness minimum. Vertical studs which are attached to diagonal steel tension strap bracing shall have three horizontal rows of equally spaced solid blocking (blocking shall be the same size member as the vertical studs) between the studs for the horizontal distance of the brace. Double vertical wall studs shall be located under the point of connection of the diagonal brace to the top track of the wall. The bottom of the diagonal tension braces shall be attached with Phillips pan head self-tapping screws (number of screws shall be calculated) to a minimum 12 gage thick, L-shaped anchor plate which shall be anchored to the foundation system with a minimum of two 3/8-inch diameter anchor bolts. Wall framing shall be attached to the foundation with minimum 3/8-inch diameter washer on top of the bottom wall track at each anchor bolt. All vertical studs shall be attached with a minimum of one Phillips pan head self-tapping screw to each flange of the wall top and bottom runner tracks. Welding will not be permitted for material less than 18 gage thickness. Interior non-load bearing walls can be a minimum 3-1/2 inches wide, C-shaped, 25-gage minimum thickness at 16 inches on center maximum spacing.

10.7.4 ROOF TRUSSES

Roof trusses shall be designed for the loads indicated. The truss diagonal members and top and bottom chords shall be custom rolled shapes, with a minimum 20-gage thickness, such that the truss is a concentric design. The end of the trusses for the overhang outriggers shall be a combination of metal stud units and the custom top chord unit. The design of trusses shall be integrated into the vertical and lateral load carrying systems. Truss member connections (chord and diagonal members) shall be fastened together with self-tapping screws sized for member axial loads and any eccentricity of the members. {AM#0003}_____. {AM#0003} Truss system shall be designed in accordance with IBC 2000 and IRC 2000.

10.8 WOOD

10.8.1 GENERAL

Wood shall conform to the requirements of IBC 2000 and the following:

10.8.2 STRUCTURAL WOOD DESIGN

The detailing of structural wood framing, if used, shall be complete including connections. All members, elements, and connections that are part of the main vertical and/or lateral force resisting system must be completely detailed. All metal connectors, bolt layouts, bolt sizes, nailing patterns and nail sizes shall be shown in details, notes and calculations. Staples shall not be used for the connections.

Wood stud spacing not to exceed 16 inches on center.

10.8.3 WOOD TREATMENT

All wood shall be treated in accordance with American Wood Preservers Association, AWPA, C-2 for above ground application. Wood that can come in physical contact with people such as decking and railing shall not contain arsenic based preservatives.

10.9 SHEATHING

Wood sheathing design shall comply with the IBC 2000 Edition except herein noted.

Termite Protection: All wood used for sheathing shall be treated in accordance with American Wood Preservers Association, AWPA, C-2 for above ground application. See Section 02364A of the RFP for additional termite protection requirements.

The detailing of wood sheathing, including connections, shall be complete. All metal connectors, bolt layouts, bolt sizes, nailing patterns and nail sizes shall be shown in details, notes and calculations. Staples shall not be used for the connections. All members that are a part of the lateral force resisting system must be completely detailed.

10.9.1 ROOF SHEATHING

Roof sheathing shall be plywood APA RATED STRUCTURAL I or II SHEATHING, 5/8-inch minimum thickness. Joints shall be tongue and grooved or be square edges provide with H clips. All roof sheathing laid shall be covered with felt by the end of each day or when a storm is approaching. Roof sheathing damaged due to moisture shall be replaced.

10.9.2 STRUCTURAL WALL SHEATHING

Wood structural panels, if used, shall be as defined by IBC 2000 Edition. Particle board and fiberboard shall not be used in structural applications.

10.9.3 STEEL STRAP TENSION BRACING

Straps shall be a minimum 14 gage thickness by a minimum 2 inches wide. Straps shall be fastened to flange of each intersecting vertical wall stud, to the wall top runner track flange and to the metal plate anchor at the bottom of the walls with Phillips pan head self-tapping screws. Calculations shall be provided for the design of the size and number of the screw fasteners.

10.10 CONSTRUCTION

10.10.1 FOUNDATION WALLS

Foundation wall shall be constructed of reinforced concrete or masonry.

Foundations walls shall extend at least 8 inches above finish grade.

Foundation walls supporting basements shall have a foundation drainage system installed around the foundation perimeter in accordance with IBC 2000.

10.10.2 SLABS-ON-GRADE

Concrete slabs-on-grade shall be {AM#0003}_____designed as a monolithic ribbed mat slab for bidding purposes. See Preliminary Geotechnical Report in Appendices for additional details. Bond breaker, such as building felt, shall be used between slab edges and abutting vertical surfaces.

Slabs shall be damproofed in accordance with IBC 2000.

{AM#0003}_____.

Crack control measures shall be incorporated into slab construction. Area of sections bounded by crack control joints shall be approximately square shall not exceed 225 square feet, and distance between crack control joints will not exceed 15 feet. All slab crack control joints, joints between edges of slabs and vertical surfaces, and any mechanical, plumbing or electrical penetrations through the floor slab shall be sealed with a flowable polyurethane caulk. Interior slabs shall be given a steel troweled finish.

10.10.3 {AM#0003} DELETED

PART 11 - UNIT DESIGN – PLUMBING

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11 UNIT DESIGN - PLUMBING

11.1 GENERAL

Plumbing system shall be designed and installed in accordance with the Uniform Plumbing Code. Inspection and testing of the plumbing system shall be performed as prescribed in the Uniform Plumbing Code. Endpoint devices (i.e. lavatory faucet, kitchen faucet, and drinking fountain) shall be in accordance with ANSI/NSF 61-1998 Part 9. See Section 01000, PART 8, SITE UTILITIES for additional exterior mechanical requirements. Additional consideration in the technical evaluation will be given to systems which incorporate measures beyond the requirements of this Section which are designed to increase energy conservation, ease of maintenance, higher efficiency water heating systems, higher grade plumbing fixture materials, etc.

11.2 WATER PIPING

Under slab supply piping shall be limited to housing unit service entrance only. Service line to each housing unit shall be no less than 1 1/2 inch diameter and new lines shall be installed a minimum of 24 inches below grade. Underslab piping shall be encased in Schedule 40 PVC protective tube to prevent damage during construction. New curb stops are required. All water piping shall be sized in accordance with methods outlined in the Uniform Plumbing Code, to limit water velocity in the pipe to 8 ft/sec unless a lower velocity is recommended by the plumbing fixture manufacturer(s). Cross connections between water supply piping and waste, drain, vent, or sewer piping is prohibited. A valve box is required for each housing unit. An isometric diagram of the water system shall be included in the 100% design submittal after contract award (see Section 01330 CONSTRUCTION SUBMITTALS). Allowable pipe materials are listed below.

11.2.1 COPPER TUBING

Water piping under concrete slabs shall be copper tubing, type K, annealed. Joints under the slabs are prohibited. Interior water piping shall be type K or L hard-drawn copper. Fittings for soft copper tubing shall conform to ANSI B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes, and for hard-drawn to ANSI B16.22, Wrought Copper and Copper alloy Solder Joint Pressure Fittings. Underslab supply piping shall be limited to unit service entrance only. Upon completion of rough-in operation and prior to concealing in the structure and the setting of plumbing fixtures, The entire hot and cold water piping systems shall be tested at a hydrostatic pressure of not less than 100 pounds per square inch gage, and proved tight at this pressure for 2 hours. Where a portion of the water piping system is to be concealed before completion, such portion shall be tested separately in the same manner as specified for the entire system.

11.3 SOIL, WASTE, VENT, AND DRAIN PIPING

Except as noted below, soil, waste, vent, and drain piping shall be Schedule 40 polyvinyl chloride (PVC), except that lateral water lines into the family units and condensate lines shall be copper. Soil, waste, and drain piping installed below floor slabs shall be service weight hub and spigot cast iron, or Acrylonitrile-Butadiene-Styrene (ABS). Building waste main lines {AM#0003} serving the housing units shall be {AM#0003} minimum 4-inch diameter. All soil, waste, and drain piping shall be sized in accordance with the methods outlined in the Uniform Plumbing Code. Each fixture and piece of equipment, except water closets, requiring connection to the drainage system, shall be provided with a trap. Provide deep-seal trapped drain with airgap for the furnace cooling coil condensate drain line. Provide an approved double wye cleanout immediately outside of the building's main waste line. Plumbing vents shall not vent into attic but, penetrate roof {AM#0003}_____and extend above the roof per code. {AM#0003} Pipe flashing at roof penetrations is required. Locate vents on the backside slope of the roof so as not to be

visible from the front of the housing unit. On straight runs of pipe, cleanouts shall be provided at not more than 50 feet apart. Cleanouts shall be provided at each change of direction of pipe and shall be provided at the base of all soil, waste, and vent stacks. All unfinished plumbing work, such as cleanouts, fittings, etc, exposed to finished rooms or spaces shall be concealed by an escutcheon plate or similar finished device of chrome plated brass or stainless steel. Soil, waste, and drain piping shall be tested with water or air before fixtures are installed. After the plumbing fixtures have been set and the traps filled with water, the drain and waste lines shall be submitted to a visual test for leakage. An isometric diagram of the sanitary sewer system shall be included in the 100% design submittal after contract award (see Section 01330 CONSTRUCTION SUBMITTALS).

11.3.1 WATER TEST

Water test shall be applied to the soil, waste, and drain system either in the entire system or in sections. If the test is applied to the entire system, all openings in the piping shall be tightly closed except the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening except the highest opening of the section under test shall be tightly plugged, and each section shall be filled with water and tested with at least a 10 feet head of water. In testing successive sections, at least the upper 10 feet of the next preceding section shall be tested so that each joint or pipe in the building. Except the uppermost 10 feet of the system, has been submitted to a test of at least 10 feet of head of water. Water shall be kept in the system or portion under test, for at least 15 minutes before inspection starts; the system shall then be tight at all joints.

11.4 GAS CONNECTIONS

{AM#0003} _____. {AM#0003} Pipe internal to gas-fired equipment shall be steel, Schedule 40, black as specified in ASME B31.8. {AM#0003} Flexible connections are permitted outside gas-fired equipment, as allowed by code. Provide accessible gas shutoff valve and coupling for {AM#0003} all gas fired equipment.

11.4.1 GAS PIPING

The interior gas piping, from the low-pressure regulator to the equipment, shall be wrought iron or steel, and the fittings, shall be malleable iron conforming to ANSI B36.10. The complete piping installation shall conform to all aspects of NFPA 54, except as stated in paragraph "GAS CONNECTIONS" above.

11.4.2 GAS TESTING

The Contractor shall set up in an accessible position, where directed, a test pump and a mercury gauge connected to the permanent gas piping. Pump and gauge shall be properly protected and kept in working order until after final inspection. All gas piping shall be subjected to an air test of 15-inch mercury column pressure without drop for 15 minutes. Gas piping shall be tested with air only. Tests shall be made by and at the expense of the Contractor and at such time as directed, and in the presence of the authorized Government representative. If there is any reduction in pressure during test period, test isolated sections and joints with soapsuds and replace leaking joints and reapply test.

11.4.3 GAS PURGING

After testing is completed, and before connecting any equipment, all gas piping shall be fully purged. Piping shall not be purged into the combustion chamber of an appliance. The open end of piping systems being purged shall not discharge into confined spaces or areas where there are ignition sources unless the safety precautions recommended in NFPA 54 are followed.

11.5 PLUMBING FIXTURES

Residential type fixtures and trim shall be provided and shall comply with ANSI Standards. Fixtures shall be provided complete with fittings, and chromium-plated or nickel-plated brass (polished bright or satin surface) trim. All fixtures, fittings, and trim in the project shall be from the same manufacturer and shall have the same finish. Faucets may be from a different manufacturer as the fixtures, fittings, and trim; however, all faucets shall be from the same manufacturer for each of the new family housing units. Metal escutcheons plates shall be installed at all water supply and drainpipe connections through walls or cabinets.

Plumbing shall meet the following criteria.

a) Exposed traps shall be chromium-plated brass, adjustable-bent tube, 20-gauge brass. Concealed traps may be plastic (ABS). Traps shall be removable and renewable.

b) Faucets shall be chrome-plated brass with ceramic cartridges and dual chrome-plated brass actuators with color-coded index. Faucets for lavatories, bathtub, shower and kitchen sinks are to be from the same manufacturer and series. Water flow shall be no more than 2.5 gpm from any faucet.

c) Shower and bath combination shall be of chrome-plated brass and controlled by a diverter valve. Baths and shower and bath combinations shall be provided with waste fitting pop-up, concealed with all parts removable and renewable through the overflow and outlet openings in the tub. Shower and bath combinations shall be equipped with a combination valve and flow control device to limit the flow to 2.5 gpm at pressure between 20 to 60 psi.

d) All piping and shut-off valves shall be concealed. Individual shutoff valves with access panels shall be provided on water supply lines to all plumbing fixtures including bathtubs and showers. Shutoff valves shall be provided for each water heater and dishwasher. Access panels shall match the finish of their surroundings.

e) Fixtures shall be water conservation type, in accordance with the Uniform Plumbing Code.

f) Vitreous china plumbing fixtures shall conform to ANSI A112.19.2, Vitreous China Plumbing Fixtures. Stainless steel fixtures shall be in accordance with ANSI A112.19.3, Stainless Steel Plumbing Fixtures (residential design). Enameled cast iron plumbing fixtures shall comply with ANSI A112.19.1, and enameled steel fixtures shall comply with ANSI A112.19.4.

11.6 WATER CLOSETS

Water closets shall be {AM#0003} elongated bowl with inclined, close coupled siphon jet, floor outlet with wax gasket, closed-front seat and cover, and an anti-siphon float valve. Water consumption shall be no more than 1.6 gal per complete flush cycle. Water closet shall be vitreous china and trim shall conform to ANSI A112.19.5, Trim for Water-Closet Bowls, Tanks, and Urinals (Dimensional Standards).

11.7 LAVATORIES

Lavatories shall be rectangular counter top type, minimum 20 inches by 18 inches, or oval minimum 19 inches by 16 inches. Lavatories shall be self-rimming vitreous china, for counter top installation. Lavatories shall have pop-up drains. Faucets in all ADA units must be lever-type.

11.8 BATHTUBS

Bathtubs shall be slip resistant and shall be constructed of porcelain enamel formed steel or gel-coated, glass fiber reinforced polyester resin with wainscot. Tubs shall have fiberglass pan. See PART 9 of this section for wainscot requirements.

11.9 KITCHEN SINKS

Kitchen sinks shall be Type 302 stainless steel, 20-gauge minimum, seamless drawn, and sound deadened. Sinks shall be a minimum of 8 inches deep, double bowl, self-mounting without mounting rings, complete with cup strainer and plug. Surface of sink shall have a brushed finish. Strainer and plug shall be eliminated where food waste disposals are provided. Kitchen sink faucet flow shall be limited to 2.5 gpm. Provide a cleanout trap a minimum of 4 inches above the floor.

11.10 CLOTHES WASHER CONNECTIONS

Drainage and hot and cold water supply shall be provided for automatic clothes washers. Washer connection, complete with 2-inch drain, with mouth 3 feet above the floor, 3/4-inch hose thread supplies shall be provided in standard manufactured recessed wall box with single-face plate. Boxes shall be constructed of plastic, ABS, or sheet steel. Steel boxes shall have a corrosion-resistant epoxy enamel finish and shall be painted to match adjacent finishes. Boxes shall be mounted a minimum of 2 feet-10 inches above the finish floor. Electrical outlets for both washer and dryer shall also be provided but can be located separate from the washer connection box.

11.11 HOSE BIBBS

Hose bibbs (wall hydrants) shall be provided at the front and rear of each housing unit. Hose bibbs shall be anti-siphon, automatic draining type non-freeze, frostproof, and shall be supplied with an integral backflow preventer/vacuum breaker and stops.

11.12 PIPING LOCATIONS

Water piping shall be installed on the warm side of insulation and shall be wrapped with insulation and a vapor barrier jacket. Determination of the warm side shall be the same as determined for vapor barrier location. Water piping shall be run below floors, but not in attics. No water piping runs within exterior walls shall be allowed except for hose bibbs.

11.13 CLEANOUTS

Accessible cleanouts shall be provided at each change in direction of sanitary sewer lines, at the intervals specified in the Uniform Plumbing Code, and at the building service entrance. All cleanouts shall be permanently accessible and shall be 2-way operational. Ground cleanouts shall be located in the front yard and recessed in cast iron or plastic housing box. Top of housing box shall be flush with grade.

11.14 WATER HEATER

Water heaters shall be located in the mechanical room. Water heaters shall have round, glass-lined tanks, and shall be installed with an integral insulating wrap with a minimum R-value of 8.3. No additional insulating wrap is required. Storage water heaters that are not equipped with integral heat traps and having vertical pipe risers shall be installed with heat traps directly on both the inlet and outlet. The water heater relief drain shall be manufacturer approved, and shall be indirectly connected to the sanitary sewer system by way of a floor drain. Water heaters shall be gas-fired, 40 gallons, AGA approved, electronic pilotless ignition as shown in Table 11-1. Water heater energy factors shall meet or exceed the minimum requirements of 10 CFR 430. Water heaters shall have factory-preset thermostats to limit water temperature to 120 degrees F maximum. Additional consideration in the technical evaluation will be given to designs, which exceed the minimum energy efficiency requirements.

Table 11-1
Water Heater Sizing

Requirements by Fuel Type	All Units
Gas:	
Storage (gal)	40
1 hour draw (gal)	76
Recovery (gph)	46
Heat Recovery Efficiency	minimum 85 percent @ 90 degrees F temperature rise

Note: Storage capacity, input, and recovery may vary with manufacturer. Any combination of the above which produces the required hour draw will be acceptable.

11.14.1 GAS-FIRED WATER HEATERS

Gas fired water heaters shall be in accordance with ANSI Z21.10.1, Water Heaters, Gas, Volume I, Storage Type, 75,000 BTUH Input or less, ASHRAE 90A, NAAECA 1990 and certified by American Gas Association. Working pressure shall be 150 psig with a factory test of 300 psig. A pressure/temperature relief valve and drain shall also be provided. Water heaters with powered ventilation shall be vented in accordance with manufacturer's instructions. Flue shall not be oversized. Flue when run through attic shall penetrate roof and extend above the roof with weatherproof installation per code. Flue shall be routed out through the roof and be located on the backside of the roof so as not to be visible from the front of the housing unit. Double-wall UL-listed chimney shall be provided. Ducted combustion air shall be provided.

11.15 SHOCK ABSORBERS

Shock absorber units, to control water hammer, are required at clothes washer and dishwasher. Shock absorber units shall be installed in accordance with the manufacturer’s recommendations. Air chambers are unacceptable. Access panels shall be provided that match the finish of their surroundings, and shall be hidden from view.

11.16 MISCELLANEOUS PIPING

Cold water piping shall be installed behind the refrigerator with an angle valve and a 1/4-inch hose thread supply to allow the occupant to use a refrigerator with an icemaker. This valve shall be provided in a standard manufactured recessed wall box with single faceplate (plastic or steel). Boxes shall be mounted a minimum of 2 foot 10 inches above finished floor.

11.17 DRAINS

A trapped, 2-inch minimum diameter standpipe with the top of the pipe 3 feet above the floor and the bottom of the trap a minimum 4 inches above the floor shall be provided in the space where the clothes washer unit is located. A floor drain shall be provided at the water heater location in the mechanical room.

11.18 FLUSHING

11.18.1 SYSTEM FLUSHING

Prior to disinfection procedures, each segment of the water line within each housing unit shall be flushed with potable water sufficient to produce a minimum water velocity of 2.5 feet per second. Flushing shall be continued until entrained dirt and other foreign materials have been removed and until discharge water shows no discoloration. Removal of the aerator portion of the faucets shall be done to prevent clogging. Upon satisfactory cleaning and flushing, Contractor shall disinfect and test all potable water lines within each housing unit in strict accordance with the latest version of AWWA C651 and in accordance with SECTION 02510 Water Distribution System.

11.18.2 LEAD RESIDUAL

Following disinfection and testing, the potable water system within each housing unit shall be flushed with a sufficient velocity of water and sufficient tests performed at each hot and cold water discharge point until no more than 15 ppb lead residuals remain in the system. The Contractor shall adhere to NSF 61 for lead leaching. All tests and samples shall be performed in accordance with state and, if applicable, Federal regulations. Samples for testing are to be collected after a 6 hour continuous period of no flushing, and will be considered first draw samples. The commercial laboratory shall be certified by the state's approving authority for examination of potable water. Once the Contractor has completed flushing and testing the system and has determined the lead concentration to be within the limits, the Contractor shall notify the Contracting Officer and the Government will then run tests to verify the results. Lead residual test results shall be submitted to the Contracting Office. The system will not be accepted until satisfactory bacteriological results and lead residual test results have been obtained. All flushing and testing for lead residuals, including all costs, are the responsibility of the Contractor.

PART 12 - MAJOR APPLIANCES

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12 MAJOR APPLIANCES

12.1 GENERAL

The Contractor shall furnish major appliances in accordance with the requirements listed below. Color of kitchen appliances, except disposals, shall be of matching finish, white in color.

12.2 REFRIGERATORS

Comply with UL 250, HOUSEHOLD REFRIGERATORS AND FREEZERS and shall bear the EPA "Energy Star" certified label. Provide upright refrigerator with two doors with frost-proof top freezer, automatic defrosting and icemaker. Refrigerator shall have two vegetable bottom baskets, at least four adjustable, glass shelves, at least two shelves and egg container in door; freezer compartment shall contain separate interior shelves, multiple door shelves, and icemaker. Provide reversible (left swing and right swing interchangeable) doors. Refrigerators shall conform to the energy compliance standards of 10 CFR 430, including those refrigerators manufactured before the code took effect. The use of refrigerants with an Ozone Depletion Potential (ODP) of .05 or less shall be investigated and used when commercially available. Minimum refrigerator volume is 20 cu ft. Water filter for refrigerator shall be in an accessible location.

12.3 DISHWASHERS

Dishwashers shall conform to UL 749, Household Electric Dishwashers, under counter with drain, and shall be UL listed, electric type, with air gap, racks, lift-out utensil holder, spraying arms, and detergent dispenser. Unit shall be listed as "Energy Star" compliant and shall bear the "Energy Star" label. The automatic controls shall cycle through the Wash, Rinse, Dry / Heat, and Stop phases, and shall be capable of rinse and hold cycle as well as a no heat drying feature. The unit shall contain instantaneous, or in-line, water heater booster, with automatic thermostat set for 140 degrees F. Rated energy use for standard capacity models will not exceed 620 kWh/yr. A plug connector is required.

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12.4 GARBAGE DISPOSALS

Garbage disposals shall conform to UL 430 and ASSE 1008; disposals shall be continuous feed, minimum 1/2 HP motor, stainless steel grinding elements, two 360-degree stainless steel swivel impellers, manual motor reset, and sound insulation. A plug connector is also required under kitchen sink for garbage disposal.

12.5 RANGES AND OVENS

Range shall be a UL-approved, electric, 30-inches wide, free-standing range with ceramic-glass cooktop. Cooktop should have 4 radiant element cooking zones, and should include a hot-surface indicator. Range shall also be provided with oven, clock and timer, oven light, and cooking surface light. Oven shall have black glass window door, broiler pan, and self-lock racks. Ovens shall be self-cleaning and have both broil and bake functions. Range controls shall be at the back of ranges for all housing units, to include ADA units. Ranges with controls at the front for ADA units will be provided by the Government as required.

12.5.1 RANGE HOODS

Provide metal range hoods, the same length and finish as the range, with separately switched light and exhaust fan. The hood shall have a washable filter. The fan shall be two-speed or variable speed and shall have a capacity of not less than 50 cubic feet per minute per linear foot of range hood. The sound level shall not exceed 6 sones. Fan shall be ducted to the exterior and shall be provided with backdraft protection. Range hood fan duct shall not be visible from the front of the unit or street.

12.6 MICROWAVE OVENS

Microwave ovens are not required but may be provided by occupants. See Part 9 for required cabinet space for tenant-furnished/tenant-installed microwave. A dedicated circuit within this required cabinet space shall be provided for a microwave oven.

12.7 GAS WATER HEATER

See PART 11 of this section for water heater requirements and location.

12.8 CLOTHES WASHER/DRYER

Provide space for tenant-furnished/tenant-installed clothes washer and dryer. Provide heavy duty grounding {AM#0003} receptacle that meets the requirements of NEC for a plug and cord type electrical connection for the washer and the dryer. See PART 9 of this section for washer and dryer locations.

12.9 CEILING FANS

The ceiling light fixture boxes for tenant-furnished/tenant-installed ceiling fans in the living room, dining room, and all bedrooms shall be provided with a metallic fixture box suitably supported from the ceiling structure so that it may support a ceiling fan. If provided by the Contractor, (see Price and Proposal Schedule) ceiling fans shall have a minimum 172 x 14 motor with five 52-inch blades. Each ceiling fan shall have a light kit with four fixtures. See PART 14 of this section for wall switch control requirements.

12.10 PROVISIONS FOR FUTURE GARAGE DOOR OPENER

A Contractor provided and installed garage door opener is not desired. Provide rough-in for a future automatic garage door opener. Provide a flush mounted ceiling electrical outlet for the garage door opener.

PART 14 – UNIT DESIGN – ELECTRICAL

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14 UNIT DESIGN - ELECTRICAL.

14.1 CONFORMANCE TO CODE

The electrical system shall be designed in compliance with the rules and recommendations of IEEE C2, National Electrical Safety Code; Illuminating Engineering Society (IES) Standards; NFPA 70, National Electrical Code (NEC), and applicable model codes, whichever is more stringent. Provide main circuit breaker in the interior main panel for each housing unit, sized in accordance with the NEC.

All equipment, materials, fixtures, and other appurtenances shall be suitable for the intended application, and shall conform to and be installed per the National Electrical Manufacturer's Association, American National Standards Institute, Institute of Electrical and Electronics Engineers, Underwriters' Laboratories, and all other applicable standards/regulations/codes.

14.2 SERVICE ENTRANCE

Each unit shall have a service rated at 200A. Service entrances shall be enclosed or sight screened. Equipment clearances shall be maintained per NEC. A shunted meter base will be provided for each individual housing unit. Provide service entrance grounding electrode system per NEC Article 250-50.

14.3 PANEL LOCATIONS

14.3.1 PANELBOARDS

Panelboards shall be located inside the housing unit mechanical room or garage. {AM#0003} Meter base must be provided on the side or back of the housing unit and not visible from the front. Panelboards shall be {AM#0003} NEMA 1, steel and furnished with main breakers. Panelboard doors shall have {AM#0003} _____ one-piece fronts. Panelboards shall be {AM#0003} surfaced mounted. {AM#0003} _____.

14.3.2 SECONDARY OVERCURRENT DEVICES

All secondary over-current devices shall be of the circuit breaker type, installed in dead-front, {AM#0003}_____ enclosures, and shall be located inside the housing unit {AM#0003} mechanical room _____.

14.4 CONDUCTORS

All secondary conductors shall be copper.

14.5 OUTLET CIRCUITS

Lighting and convenience outlets shall be on separate circuits. Outlets on party walls shall be offset a minimum of 12 inches to maintain integrity of the firewall and sound deadening rating of the wall. All equipment, appliances, lighting fixtures, and receptacles are to be grounded by an equipment grounding conductor that terminates at the grounding screw in the outlet box with a jumper attached to the grounding screw of the device.

14.6 EXTERIOR LIGHTING AND OUTLETS

Provide energy efficient high quality lighting for each housing unit. The minimum efficiency standard for lighting is 50 lumens/watt. This efficiency can be achieved with fluorescent and compact fluorescent lighting. Lighting must also be color corrected with a Color Rendering Index (CRI) of 60 or better. Light fixtures at entry and patio areas shall be switched from the housing unit interior. These lights shall be controlled by photocell, activated by minimum light levels of 0.5 foot-candle. Provide a fixture in the patio area, except that the patio area light shall not be provided where the patio is adjacent to an exterior entrance and is adequately served by the lighting fixture required herein before.

14.6.1 GROUND-FAULT CIRCUIT-INTERRUPTER OUTLETS

Provide a minimum of one Ground-Fault Circuit-Interrupter outlet at each unit's front and rear entrance, garage, and patio area(s), and as required by code in bathrooms, kitchens, and laundry rooms. Ground-Fault Circuit-Interrupter (GFCI) circuit shall be designed only for outlets requiring GFCI protection in accordance with the National Electrical Code. No other outlets shall be connected to GFCI circuits.

14.6.2 ILLUMINATED HOUSE NUMBERS

Provide exterior wall, {AM#0003} aluminum, flush mounted {AM#0003} lighted address sign {AM#0003}_____ with integral house unit numbers {AM#0003} for each housing unit. {AM#0003} _____ The type fixture shall have the address of the housing unit on the front lens {AM#0003} and shall have a baked-on powder-coat paint finish. The fixture shall be on the same circuit as the front entry light fixture {AM#0003} and shall be hard-wired using a recessed outlet box on the exterior wall. {AM#0003} The sign shall be illuminated by light emitting diodes (LEDs) and shall turn on automatically at dusk and turn off at dawn using a photocell that activates by minimum ambient light levels of 0.5 foot-candle. {AM#0003} _____. House number shall NOT be adhesive type. {AM#0003} The sign is desired to be similar to the "Becon Lighted Address Sign" model EZ2C, which can be viewed at the following internet address: http://www.ledaddress.com

14.7 INTERIOR LIGHTING AND SWITCHED OUTLETS

14.7.1 EFFICIENCY

Interior lighting will be both efficient and color corrected. Fluorescent fixtures shall be used wherever possible. Color Rendering Index (CRI) of {AM#0003} 82 or better and a standard lighting color of 3500 K are required. As part of the submittal, contractor is to provide product data and model number of items to supplied. Preferred manufacturers are Philips, Alto; General Electric, Ecolux; Sylvania, Octron; or equal. Minimum efficiency standard for lighting are as follows:

a) Fluorescent tubes 4 feet and longer: 90 lumens/watt.

b) Fluorescent tubes less than 4 feet: 80 lumens/watt.

c) Compact fluorescent and other lamps: 50 lumens/watt.

14.7.2 LOCATIONS

Provide light fixtures operated by wall switches for all rooms except living rooms. Wall-switch operated ceiling lights shall be provided in dining and utility rooms, family rooms, halls, bedrooms, and kitchens. {AM#0003} A minimum of two wall switch operated outlets shall be provided in the living room. Kitchen sink shall have a light fixture above with light switch with receptacle located near the sink. Additional light fixtures shall be provided in rooms whose configuration requires them for adequate lighting. Wall-switch

operated wall-mounted lights shall be provided in bathrooms located above the mirror over the lavatory. Exhaust fans in bathrooms and shall be separately switched from the lights. Walk-in closets and interior and exterior bulk storage rooms shall be provided with wall-switch ceiling lights. A minimum of one lighting fixture, ceiling or wall mounted, as appropriate, shall be provided in the garage. Where future ceiling fans may be installed (see PART 12 of this section), Contractor shall provide additional wiring to allow for independent wall switch control of the fan and light, as well as required bracing for fixtures to support light and ceiling fan. Where exterior bulk storage is located within the enclosed walls of a garage, each space shall be lighted separately. Garage lights shall be controlled by a switch (switches) located at each door opening into the garage. A double switch shall be placed in the family room, the dining room, and the bedrooms for switching a light fixture and ceiling fan. Fixture outlet boxes in these locations shall be metallic and shall be suitably supported from the ceiling structure to support a future ceiling fan.

a) Dining room ceiling light fixtures shall be located for typical dining room furniture arrangement. Fixtures may be designed for incandescent use, and do not have to meet the 50 L/Watt requirement.

b) The general lighting intensity in kitchens shall be 30 to 50 foot-candles. Supplementary lighting shall be provided at the sink and under one of the wall cabinets for a work center to produce a composite lighting level of 75 foot-candles using either down-lights, surface fluorescent fixtures surface-mounted below wall cabinets or wall-mounted fixtures (5 feet and higher above the floor) as appropriate. Kitchen range hood shall be provided with a light, fan, and switches.

14.8 SMOKE ALARMS

Provide residential type smoke alarms conforming to the requirements of ANSI/UL 217 *Standard for Safety Single and Multiple Station Smoke Alarms*, NFPA 72, and MIL HDBK 1008-C. Smoke alarms shall be capable of detecting abnormal quantities of smoke and shall alarm prior to gray smoke level of 4 percent per ft.

a) Smoke alarms shall be provided in all sleeping rooms and outside each separate sleeping area in accordance with NFPA 101. When two or more smoke alarms are required within a living unit or similar area, they shall be arranged so that operation of any smoke alarm shall cause the alarm in all smoke alarms within the living unit to sound.

b) Smoke alarms shall be hard wired to the housing unit’s electrical system on a separate circuit in accordance with NFPA 72. A secondary power supply is prohibited.

14.9 CARBON MONOXIDE (CO) DETECTORS

In accordance with UL-2034 (October 1998 edition), carbon monoxide detectors shall be residential application, multiple-station, powered by a dedicated 60 Hz, 120VAC source (separate from the 120VAC source for the smoke detectors), capable of being interconnected with up to 11 identical detectors. Carbon monoxide detectors shall be 100% solid state, and meet sensitivity requirements of UL-2034. Detectors shall have a service life not less than 5 years. A secondary power supply is prohibited.

Detectors shall incorporate an 85dB electronic horn at 10 feet that will sound an early warning or full alarm depending on the level of CO. Detector shall include LED indicator lamp, test switch, and shall reset automatically when level of CO clears. CO detector bases shall be flush with quick male-female plastic snap on connectors for ease of mounting and dismounting the carbon monoxide detector. Install at least one detector outside of each sleeping area in the immediate vicinity of the bedrooms. Each detector should be located on the wall, ceiling or other location as specified in the installation instructions that accompany

the unit. CO alarms are not required in garages, mechanical rooms, or unfinished attics. Alarm signal from one CO detector shall be wired to sound all CO detectors in that family housing unit.

14.10 TELEPHONE

The interior telephone system shall be provided by the Contractor in accordance with the local telecommunications company. The interior system shall consist of inside phone cable (pre-wired) concealed in walls, device boxes with modular jacks, telephone terminal boxes, testing, and tagging. Provide a separate {AM#0003} 4-pair, Category 3, UTP, copper phone cable run from terminal box to each outlet. Loop wiring shall not be allowed. The cables inside each housing unit shall be identified by address. All wiring shall terminate in a surface mounted, weatherproof, protected telephone terminal located on an outside wall adjacent to the housing unit metering equipment. ("Demarcation Box"). The protected telephone terminal cover shall be provided with means for padlocking, shall be accessible from the outside, and shall be permanently labeled, "Telephone". One protected telephone terminal shall be required for each housing unit. A single #10, CU, green equipment grounding conductor shall be run in 1/2-inch non-metallic conduit from the housing unit metering equipment to the protected telephone terminal box.

14.10.1 MINIMUM OUTLETS

As a minimum, provide a single phone line to each of the following areas: kitchen, family room, living room, and all bedrooms. Provide each family housing unit with {AM#0003} a Grade 1 system, two phone line capability. Eight position modular jack connectors shall be provided at all outlets. The jack provided in the kitchen shall be for a wall-mounted phone. Wiring shall comply with EIA/TIA Standard 570, Residential and Light Commercial Telecommunications Wiring Standard.

14.10.2 MOUNTING

Outlets shall be flush mounted in single or double gang boxes in walls at an appropriate height above the floor. Outlet plates shall be ivory in color. Covers shall be parallel to the floor.

14.11 CABLE TELEVISION

The Contractor shall provide the interior cable TV system per Cox Communications. Provide CATVX, RG-59 coaxial cable for all wiring. Verify cable compatibility with Cox Communications. Loop wiring shall not be allowed. Provide outlets in the living room, all bedrooms, kitchen, and family room. Outlet jacks shall be Type F. Each cable shall be provided with an appropriate tag, inside the terminal box, showing housing unit number and outlet location (i.e., Unit number 2, family room outlet). Provide one terminal box for each individual housing unit. The terminal box shall be bonded to the service equipment ground.

The cable TV system shall be complete and shall provide adequate reception for color receivers and both UHF and VHF programming.

14.11.1 MOUNTING

Cable TV outlets shall be flush mounted in walls at 18 inches above the floor. Outlet plates shall be ivory in color.

14.12 DOOR BELL

The front entrance to each housing unit shall be provided with a low voltage bell or buzzer. Rough-in for a doorbell visual enunciator shall be provided in the handicapped accessible family housing units.

14.13 CONVENIENCE OUTLETS

In addition to outlets required by NEC, provide convenience duplex outlets in the following areas:

a) Utility room.

b) Hallway outside bedrooms.

c) Garage: Provide an outlet in the ceiling of the garage for future garage door opener, as well as one outlet (minimum) per wall within the garage.

d) Front Soffit: Provide one duplex outlet near the front door under the soffit for holiday lighting.

14.14 SPECIAL OUTLETS

Provide 240 V electric outlet for electric dryer. Provide 240V electric outlet for electric range. Provide 120V electric outlet under kitchen sink for garbage disposal with a switch mounted above the counter for control. Provide 120V electric outlet within specified kitchen cabinet for microwave oven. Provide 120V electric outlet adjacent to the telephone outlet in the kitchen.

14.15 WIRING

Maximum use shall be made of non-metallic sheathed cable for branch circuit wiring, and of service entrance cable for heavy-duty interior circuits and for service entrance conductors. Conductors insulated in conduit shall be used only where specifically required by the NEC. Conductors shall be copper with a minimum size of #12 AWG.

14.16 BRANCH CIRCUIT CONDUCTORS

Branch circuit conductors and over current devices shall be as rated by NEC. A minimum of one spare circuit space in the panel shall be provided per housing unit. Individual circuits shall be provided for the washer, dryer (with receptacles located behind the washer and dryer), dishwasher, garbage disposal, kitchen microwave, furnace or air handling unit, and air conditioning unit. Two utility circuits (20 amp) shall be provided in the kitchen area for the convenience duplex outlets for small appliances serving the kitchen, {AM#0003} and dining area. Arc fault circuit protection shall be provided for the bedrooms.

SECTION 01001

DESIGN AND CONSTRUCTION SCHEDULE
03/2002
AMENDMENTS NO. 0002 and 0003

PART 1 GENERAL

1.1 SCHEDULE

Commence, prosecute, and complete the work under this contract in accordance with the following schedule and Section 00700 CONTRACT CLAUSES clauses COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK and LIQUIDATED DAMAGES:

Item of Work	Commencement of Work (calendar days)	Completion of Work (calendar days)	Liquidated Damages per calendar day[1]_ __
(1) Completion of all design and construction work for Task Order No. 1 (Base Bid and all options), FY03 Replace 85 Family Housing Units, except Establishment of Turf and Landscaping	Within 10 calendar days after receipt of Notice of Proceed	550	$1,400.00
(2) **(AM#3) DELETED**			
(3) Establishment of Turf	**	**	---
(4) Landscaping	***	***	---

[1]NOTES:
a. The Contract duration stated above for Work Item 1 is the maximum duration until Contract Award. Upon Contract Award, the Contractor's proposed duration as stated on the Price Proposal Schedule shall become the contract duration for this Work Item. The liquidated damages stated above will be applied for each calendar day the Contractor exceeds the Contract scheduled duration.

b. See Section 01012 SUBMITTALS DURING DESIGN and Section 01001, DESIGN AND CONSTRUCTION SCHEDULE, paragraph "SEQUENCE OF DESIGN/CONSTRUCTION," concerning start of construction.

c. For construction planning purposes Government review time for review submittals (100% site and utility and 60% buildings design, and 100% buildings design) is specified in 01012 SUBMITTALS DURING DESIGN.

d. Delay in completion of design will not be considered as a valid reason to delay completion of entire work.

e. Supplemental liquidated damages for the E-1 thru E-6 2-Bedroom and 3-Bedroom units will be applied for each individual unit not completed by the Task Order date of completion.

*Establishment of Turf

Planting and maintenance for turfing shall be in accordance with Contractor's Section for TURFING . No payment will be made for establishment of turf until all requirements of the section are adequately performed and accepted, as determined by the Contracting Officer.

**Landscaping

Planting and maintenance for landscaping shall be in accordance with Contractor's Section for LANDSCAPING. No payment will be made for landscaping until all requirements of the section are adequately performed and accepted, as determined by the Contracting Officer.

1.1.1 Testing of Heating and Air-Conditioning Systems

The times stated for completion of this project includes all required testing specified in appropriate specification sections of heating, air conditioning and ventilation systems including HVAC Commissioning. Exception: boiler combustion efficiency test, boiler full load tests, cooling tower performance tests, and refrigeration equipment full load tests, when specified in the applicable specifications, shall be preformed in the appropriate heating/cooling season as determined by the Contracting Officer.

1.2 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 1989) (ER 415-1-15)(52.0001-4038 1/96)

a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays

due to precipitation and temperature is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities. Wind is not considered in the Monthly Anticipated Adverse Weather Calendar Day Schedule.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK
ABILENE, TX AREA (DYESS AFB AND RESERVE CTRS. WITHIN 80 MILE RADIUS, EXCEPT WITHIN 40 MILES OF SAN ANGELO,TX.)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2	2	2	2	4	3	3	2	3	3	1	2

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day.

The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph "b", above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)."

1.3 ORDER OF WORK

1.3.1 Phasing

1. **(AM#2) New Construction and Demolition Phasing**

a. As set forth in a subsequent paragraph, the Government desires to accept new housing units in groups before the total project has been completed.

b. Demolition of existing housing units will not commence until occupants can be relocated to new housing with the following exceptions:

- The Government will have 7 duplex buildings (14 of 84 units) available for demolition on 1 January 2003.

- Contractor will not be required to initiate demolition on the partial set of units to be demolished except for the duplex building to be demolished to gain access to the Contractor Staging Site. That building is in addition to the 14 units available in January and will be available for demolition upon approval of demolition related design and administrative requirements.

- The Government may elect to make additional units available for demolition as they become available as new units are turned over

and occupants vacate existing and move into new units.

2. **(AM#2) The Contractor will be given Task Order No. 1 (FY03 Replace 85 Family Housing Units) at Contract Notice to Proceed. Prior to or upon completion of Task Order No. 1, another task order may be negotiated with the Contractor to design and build another group of units.**

3. Project Fence: In accordance with Section 01500 TEMPORARY CONSTRUCTION FACILITIES AND CONTROL, the Contractor shall construct a temporary project security fence around the project site. After approval and construction of this fence, the project site will be considered to be off-base and not under base security. On completion of the Contract, the Contractor shall remove the fence and gates in accordance with Section 01500 TEMPORARY CONSTRUCTION FACILITIES AND CONTROL.

4. The Contractor shall construct prototypes of each housing unit type as defined below.

5. The Contractor shall complete and turn over housing units **(AM#2) in groups of housing units, no less than 8 units nor more than 20 units at a time**. Adjust project fencing to allow occupant access to the completed housing units.

1.3.2 Prototype Housing Units

After Contract award, prototype family housing units of each **(AM#20 building** type design (2-br unit, 3-br unit, and ADA unit) shall be constructed to demonstrate construction details and quality of construction. Each stage of work shall be completed and accepted on the prototype housing unit prior to starting work on the same stage for similar housing units. The prototype family units will be used to verify the details of the accepted design and material selections and to establish the standards of construction and workmanship against which the remaining project will be judged. Work on each successive stage of the prototype housing unit may begin immediately after the acceptance of the preceding stage. However, a representative sample of the work on one prototype unit for each stage of construction shall be retained for examination with the prototype housing unit (i.e. not worked over, covered, or concealed in any way) until completion of that stage of the work throughout the project unless otherwise authorized by the Contracting Officer. As a minimum, the stages of the work in each prototype housing unit that will be subject to acceptance by the Contracting Officer include the following:

Concrete Work
Rough framing (roofs, floors, ceiling, and exterior and interior walls).
Plumbing, mechanical, electrical rough-in
Insulation (walls, ceilings, and roofs)
Gypsum wallboard installation
Gypsum wallboard finishing
Doors
Windows
Hardware
Infiltration compliance
Installation and operation of fixtures and equipment (plumbing, mechanical, and electrical)
Finish carpentry and cabinetry
Interior finishes and trim
(AM#2) Exterior finishes and trim

(AM#2) Roofing System

Prototype housing units shall be completed to finished status upon construction and acceptance of all other housing units.

1.3.3 Superintendence Of Subcontractors

a. The Contractor shall be required to furnish the following, in addition to the superintendence required by the Contract Clause entitled "SUPERINTENDENCE BY CONTRACTOR":

(1) If more than 50% and less than 70% of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

(2) If 70% or more of the value of the work is subcontracted, the Contractor shall be required to furnish two such superintendents to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

b. If the Contracting Officer, at any time after 50% of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirement for additional superintendence subject to the right of the Contracting Officer to reinstate such requirement if at any time during the progress of the remaining work he finds that satisfactory progress is not being made.

1.4 WORK RESTRICTIONS

1.4.1 Existing Housing

Work is adjacent to existing housing units. Utilities and roads to existing housing units shall remain operational throughout the Contract.

1.4.2 Working Hours

Working hours are specified in Section 01363 SPECIAL PROJECT PROCEDURES FOR DYESS AIR FORCE BASE.

1.4.3 Security Requirements

For the duration of this Contract, access to the Installation may be delayed between 30 minutes to an hour or more due to security precautions, including the checking of vehicle occupants' IDs, vehicle manifests, and the searching of all vehicles. Any general or specific threat to the safety of those working or living at Dyess AFB could result in longer waiting times at the access points to Dyess AFB.

1.5 UTILITIES

1.5.1 Payment for Utility Services

In accordance with Contract Clause 52.236.14 AVAILABILITY AND USE OF UTILITY SERVICES, water, gas, and electricity are available from Government-owned and operated systems and will be furnished without charge to the Contractor as specified in Section 01363 SPECIAL PROJECT PROCEDURES FOR DYESS AIR FORCE BASE.

1.5.2 Outages

(AM#2) See Section 01363 SPECIAL PROJECT PROCEDURES FOR DYESS AIR FORCE BASE.

1.6 STREET CLOSINGS

Street closing procedures shall be in accordance with Section 01363 SPECIAL PROJECT PROCEDURES FOR DYESS AIR FORCE BASE.T

1.7 CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA

During initial site layout and before existing conditions are disturbed the Contractor shall verify, in writing, the basic survey data provided on the contract drawings. Verification shall be initiated from the point shown on the contract drawings or from the contract drawing reference point designated by the Contracting Officer's Authorized Representative and shall include, as a minimum, benchmark elevations, horizontal control points, and sufficient spot checks of critical elevations to ensure that the survey data adequately reflects existing conditions. The Contractor shall not proceed with construction until survey verification is provided to the Contracting Officer's Authorized Representative. Before an existing benchmark referenced on the contract drawings is disturbed the Contractor shall establish a new benchmark which has been approved by the Contracting Officer's Authorized Representative. Benchmarks which are destroyed without authorization from the Contracting Officer's Authorized Representative must be replaced at the Contractor's expense as prescribed in Section 00700 Contract Clause, "Layout of Work." The Contractor shall refer to Contract Clauses, "Differing Site Conditions" and "Site Investigation and Conditions Affecting the Work," for additional requirements.

1.8 **(AM#3) SEQUENCE OF DESIGN/CONSTRUCTION (FAST TRACK)**

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. The Contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The Contracting Officer will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submitttals have been made, reviewed and are satisfactory to the Government.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 01012

SUBMITTALS DURING DESIGN
04/02
AMENDMENT NO. 0001, 0002, 0003

PART 1 GENERAL

1.1 SUMMARY

1.1.1 SECTION INCLUDES

This section includes general requirements for developing and submitting a design including preparation of drawings, specifications and design calculations conforming to the requirements contained in this section.

1.1.2 SECTION EXCLUDES

This section does not include requirements for construction submittals, which are specified in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURE."

1.2 DESIGN COMPLETION SCHEDULE

See paragraph COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK in Section 01001 DESIGN AND CONSTRUCTION SCHEDULE for the Completion Schedule of the entire work.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced in the Contract. The publications are referred to in the text by basic designation only.

THE CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI)

CSI Masterformat	(1995) MasterFormat

U.S. DEPARTMENT OF DEFENSE

MIL-HDBK-1008C	(10 June 1997) Fire Protection For Facilities Engineering, Design and Construction

INTERNATIONAL CODE COUNCIL (ICC)

ICC Building Code	(2000) ICC International Building Code
ICC Plumbing Code	(2000) ICC International Plumbing Code (IPA)
ICC Mechanical Code	(2000) ICC International Mechanical Code
ICC Fire Code	(2000) ICC International Fire Code
ICC Fuel Gas Code	(2000) ICC International Fuel Gas Code

(AM#3) INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO)

IAPMO-01	**(2000 Edition) The Uniform Plumbing Code**

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 1	(February 5,2001) Fire Prevention Code
NFPA 54 (AM#3)	**(1999) National Fuel Gas Code**
NFPA 70	(2002) National Electrical Code
NFPA 101	(2000) Life Safety Code

(AM#2) TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS (TSDHPT)

TSDHPT-01	**(Current Edition) Standard Specifications for Construction of Highways, Streets and Bridges**

US ARMY CORPS OF ENGINEERS, SOUTHWESTERN DIVISION (SWD)

SWD-AEIM	(October, 2000) Architectural and Engineering Instructions Manual (SWD-AEIM)

1.4 SUBMITTALS

SD-05 Design Data

Design Certification and Transmittal Letter; G.

See DESIGN CERTIFICATION paragraph. Form is attached at the end of this Section.

1.5 **(AM#1) ENGLISH REQUIREMENTS**

(AM#2) This is an English dimensioned project.

1.5.1 **(AM#1) Not Used**

1.5.2 **(AM#1) Not Used**

1.5.3 **(AM#1) Not Used**

1.5.4 **(AM#1) Not Used**

1.5.5 **(AM#1) Not Used**

1.6 DEFINITIONS

1.6.1 Acceptance

This is the Government's review of the design submittals, construction submittals, and record drawings for conformance to the Contract requirements. Acceptance shall not be construed to be an endorsement of the accuracy or completeness of the design. The Contractor is ultimately responsible for the contract design and construction. Design deficiencies or omissions in the accepted design shall be the responsibility of the Contractor and the Designer of Record.

1.6.2 Approve, Approved, and Approval

As these words are used throughout the documents, they shall mean "as approved by the Designer of Record unless otherwise expressly stated." See Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES.

1.6.3 Complete Specification Section

A Complete Specification Section is one that follows the Construction Specifications Institute's (CSI) 16-Division, 3-Part Section format, including the required submittal register and testing requirements.

1.6.4 Contractor

Firm or company to whom award is made to design and construct the project.

1.6.5 Contract Documents

Contract Documents, in addition to the signed Contract Form and the Contract Clauses, include the Request for Proposal, all amendments, the Contractor's proposal as accepted at the time of contract award, and the Contractor approved, Government accepted 100% final construction documents.

1.6.6 Construction Documents

Documents provided by the Contractor and accepted by the Government for use in constructing the project, including but not limited to final design drawings and specifications, schedules, submittal registers, and color boards.

1.6.7 Corps of Engineers Unified Facilities Guide Specifications (UFGS)

Includes the Corps of Engineers Unified Facilities Guide Specifications (UFGS) for Military Construction, the narrow-scope sections developed by the Fort Worth District (UFSWF GS), and the Fort Worth District Supplements to the UFGS.

1.6.8 Design Documents

Documents which include design drawings, project specifications, and design analyses (basis of design and calculations) prepared by or under the direct supervision of registered professional architects and engineers and proposed by the Contractor to meet the requirements of this Contract.

1.6.9 Design Drawings

Documentation showing in graphic and quantitative form the extent, design, location, relationships, and dimensions of the construction to be provided by the Contractor. (Note: Shop Drawings, as defined in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES, are not to be provided until after design drawings are accepted for construction.)

1.6.10 Designer

Architects and Engineers (A/E) associated with the Contractor who are responsible for the design and have the qualifications and experience specified.

1.6.11 Designer of Record

The Contractor's Architect/Engineer (A/E) is the "Designer of Record" and officially approves the design submittals, construction submittals, and record drawings. There shall be a designer of record for each design discipline. The designer of record is solely liable for design errors and/or omissions and shall have professional liability insurance to insure the designer against design errors and omissions. The Contractor's Construction Quality Control Staff will check and certify all construction submittals. See paragraph DESIGNER(S) OF RECORD for additional requirements.

1.6.12 Mandatory Guides

Mandatory Guides are those guides included in Divisions 2 through 16 of the Contract as unedited or partially edited guides and which shall be included in the Contractor's construction specifications. Some of the guides may be partially edited while others may not be edited at all. The Contractor shall edit or finish editing these guides.

1.6.13 Mandatory Sections

Mandatory Sections are those sections included in Divisions 2 through 16 of the RFP which have been completely edited and shall be included in the Contractor's construction specifications verbatim.

1.6.14 Solicitation or Request for Proposal (RFP)

Documents furnished to prospective offerors containing proposal information and specifying criteria and project requirements for design and construction of the project. The documents include this specification, attachments, and the information drawings.

1.6.15 Construction Specifications

Construction specifications are the Contractor's developed construction specifications consisting of the Government-furnished Division 1 (General Requirements) sections and the Contractor-written sections in Divisions 2 through 16 which will be used to construct the project. Divisions 2 through 16 shall include any the Contract mandatory specifications

1.6.16 Design Development (60 Percent Design) Submittal

Design Development (60 Percent Preliminary Design) Submittal shall mean 60 percent building, including foundations, and 100 percent site work and utilities (including utilities within the 5 feet line of the housing units). See paragraph DESIGN SUBMITTALS for further clarification.

1.7 QUALITY ASSURANCE

1.7.1 DESIGN AND CONSTRUCTION PERSONNEL QUALIFICATIONS

Design and Construction Personnel experience shall be as submitted in accordance with the requirements of Section 00110 PROPOSAL SUBMISSION AND EVALUATION. If, because of reasons beyond the control of the Contractor, the named individuals are not able to fulfill their obligations, replacement personnel with similar skills and experience shall be presented for acceptance by the Contracting Officer. The Contractor shall obtain the Contracting Officer's written consent before making substitutions for designated personnel.

1.7.1.1 Project Manager

The project manager shall have a recognized four-year or higher college degree in architecture, engineering (or related technical fields), or construction management and have at least 5 years experience in managing design and construction projects or 10 years experience in managing construction projects only. Experience shall be related to housing projects similar in size and scope of this Contract. The Project Manager may be the lead designer.

1.7.1.2 Designers

Provide at least one professional licensed architects or engineers for each of the design disciplines (landscape, architectural, civil, structural, mechanical, and electrical) who have at least 5 years experience in their discipline. Each lead designer shall have a recognized four-year (or higher) college degree in architecture or engineering and 3 years experience as a lead designer. The architect shall be proficient with sustainable design or LEED Green Building Rating Systems and its building practices, technologies, policies, and standards as developed by the U.S. Green Building Council. The field work, analysis, and design of the cathodic protection system shall be accomplished by or under direct supervision of an engineer licensed in corrosion engineering or a corrosion specialist certified by the National Association of Corrosion Engineers (NACE). The corrosion engineer or corrosion specialist shall have a minimum of five years experience in designing and installing cathodic protection systems.

1.7.1.3 Surveyor

The Surveyor should be licensed in the State of Texas and have at least 5 years experience in the field of surveying.

1.7.1.4 Geologist/Geotechnical Engineer

The Geologist/Geotechnical Engineer should be a licensed geologist or registered professional engineer and have at least 5 years experience in soil borings and soil classification.

1.7.1.5 Early Childhood Play Specialist

The early childhood play specialist shall have a recognized four-year college degree in early childhood education or related technical fields, and have at least 5 years experience in the design of play areas.

1.7.1.6 Design Quality Control Manager

Design quality control manager and the alternate manager qualifications are specified in Section 01430 DESIGN QUALITY CONTROL. Design quality control manager shall not be the same person as the construction quality control manager.

1.7.1.7 Construction Quality Control Manager

Construction quality control manager and assistants qualifications are specified in Section 01451 CONSTRUCTION QUALITY CONTROL. Construction quality control manager shall not be the same person as the design quality control manager.

1.7.1.8 Project Superintendent

The Project Superintendent should be a graduate engineer or experienced construction person and have at least 5 years experience in related work on housing projects similar to this project. See Section 01451 CONTRACTOR QUALITY CONTROL for additional requirements.

1.7.1.9 Project Schedule Scheduler

Qualifications for the Scheduler are specified in Section 01320 PROJECT SCHEDULE.

1.7.1.10 CADD Personnel

CADD personnel shall be proficient in the preparation of architectural and engineering drawings and the CADD equipment that will be used to create the required drawings and record drawings. The lead CADD person shall have at least 5 years experience on the proposed equipment.

1.7.1.11 Industrial Hygienist

Industrial Hygienist (IH), or Designated Industrial Hygienist, shall be a professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.

The Designated IH shall be board certified in the practice of industrial hygiene as determined and documented by the American Board of Industrial Hygiene (ABIH), have EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C, and have a minimum of 5 years of comprehensive experience in planning and overseeing abatement activities for asbestos, lead, regulated materials, and mold. Provide copies of the Designated IH's current valid ABIH certification, "Contractor/Supervisor" course completion certificate(s), the most recent certificate(s) for required refresher training, and the employee "Certificate of Worker Acknowledgment" as required in Section 13280 ASBESTOS ABATEMENT. The Designated IH shall be completely independent from the Contractor according to federal, state, or local regulations; that is, shall not be a Contractor's employee or be an employee or principal of a firm in a business relationship with the Contractor negating such independent status.

1.7.2 CONSTRUCTION MANAGEMENT KEY PERSONNEL

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this Contract. In addition to the typical required construction activities, the Contractor's involvement shall include, but is not limited to, actions such as integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the Contract), ensuring constructability and economy of the design, integrating the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities. The Contractor's Quality Control Staff will check

and certify all submittals.

1.7.3 DESIGNER(S)OF RECORD

The Contractor shall identify, for approval, the Designer of Record for each area of work. One Designer of Record may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, registered Designer of Record. The Designer(s) of Record shall stamp, sign, and date all design and construction drawings under their responsible discipline at each design submittal stage, including modification drawings after start of construction (See Section 00700, CONTRACT CLAUSES, Clause 52.236-25 entitled "Requirements for Registration of Designers").

1.7.4 CODES

Make all portions of the project comply with all applicable local, State, and federal regulations, including those listed below:

a. In the event of conflict or inconsistency between any of the provisions of the various codes, standards, or references, precedence shall be given in the following order:
1) Contract requirements
a) The code, standard, or reference that is listed in the Contract design or performance requirement;
b) When conflict exists between references, the more stringent requirement shall govern;
c) Where a particular design aspect is not covered by any of the codes, standards, or references listed, nor by the requirements specified in the Contract, the Contractor shall be guided by other nationally recognized and accepted codes or standards which do apply;
d) The "authority having jurisdiction," or the role of the code official, as cided in codes, standards, or references, will be the Contracting Officer.
2) Installation Design Guide
3) Southwestern Division's Architectural and Engineering Instructions Manual (SWD-AEIM)
4) Technical and Engineering Manuals, Instructions, Letters, Design Guides, Engineer Regulations, Pamphlets, and Bulletins.

b. Federal Regulatory Requirements:
1) 29 CFR 1910-1997, Occupational Safety and Health Standards, and in particular 29 CFR 1910.1001, Appendix F, "Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly and Assembly."
2) U.S. Environmental Protection Agency (EPA), National Pollution Discharge Elimination System (NPDES) Storm Water Construction Permit in accordance with Federal register, Volume 63, Number 128, July 6, 1998.

c. State of Texas regulatory requirements
1) Texas Natural Resource Conservation Commission (TNRCC)
a) Air emission in accordance with 30 Texas Administrative Code (TAC) 116.111 and 30 TAC 106
b) Underground and Aboveground Storage Tanks per 30 TAC 334
c) Erosion and sedimentation control regulations, see NPDES requirements above and Section 01421 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN, Volume III SPECIFICATIONS.

d. Non-Regulatory Criteria Documents:

1) NFPA 1, Fire Prevention Code

1A) **NFPA 54 National Fuel Gas Code (AM#3)**

2) NFPA 70, National Electrical Code.

3) NFPA 101, Safety to Life From Fire in Buildings and Structures.

4) ICC International Fire Code

5) ICC International Building Code

6) **IAPMO-01 The Uniform Plumbing Code (AM#3)**

7) ICC International Mechanical Code

8) ICC International Fuel Gas Code

9) SWD Architectural and Engineering Instructions Manual (SWD-AEIM).

10) For Environmental Design, see Chapter XII ENVIRONMENTAL DESIGN of SWD-AEIM.

11) MIL-HDBK-1008C, Fire Protection For Facilities Engineering, Design and Construction

12) Army Regulation (AR) 200-1, Environmental Protection and Enhancement, February 1997.

(AM#2) Texas Standard Specifications for Construction of Highways, Streets and Bridges (TSDHPT-01 Current Edition)

1.8 SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS, AND DESIGN ANALYSES

1.8.1 DESIGN CERTIFICATION

With each submittal the Contractor shall certify that all items submitted in the design documents (after contract award) comply with the Contract requirements. The criteria specified in this Contract are binding contract criteria and in case of any conflict, after award, between the Contract criteria and Contractor's submittals, the criteria stated in the Document Order of Precedence in Section 00800 SPECIAL CONTRACT REQUIREMENTS will govern. The Contractor shall present with the letter of transmittal for each design submittal (including the 100 percent corrected design (compliance check) submittal) a certification that the submittal (drawings, specifications, design analysis, etc.) complies with the requirements stated above. Prepare the design certification and transmittal letter in the format shown on Attachment A attached at the end of this Section.

1.8.2 DEVIATIONS

Deviations from the Contract requirements shall be identified in each design submittal's letter of transmittal. These deviations will be considered for approval by the Contracting Officer if the changes result in significant improvements to the project or they exceed the minimum Contract requirements. The Contracting Officer may reject any deviation proposed by the Contractor without explanation.

1.8.3 FIELD INSPECTION

The Contractor shall verify field conditions which are significant to design by field inspection, researching and reviewing the existing documents pertaining to the site and existing building(s), and evaluating observable existing conditions. The information shall be reflected in the design documents. It is the responsibility of the Contractor to evaluate existing conditions in the immediate proximity of the project to determine if such conditions may affect, or be affected by the proposed construction. If there are site conditions which appear to affect the proposed construction the Contractor shall inform the Contracting Officer, in

writing, before proceeding with the work.

1.8.4 NUMBER OF COPIES

The number of copies for distribution is specified in paragraph "Review Document Distribution." For each design submittal, submit for review and acceptance the specified number of copies of the construction drawings, specifications, design analyses, equipment schedules, submittal register, and all other submittal data, which shall be in accordance with the requirements of the Contract Documents. Upon final acceptance, make distribution of the accepted design and construction documents within 7 calendar days. **(AM#2) For each agency or individual on the Distribution List**, provide one CD-ROM disk (or more if required) containing all documents. The CD-ROM disks shall be fixated "Final," which is a recording option that renders the disk totally used so that no other data tracks can be added in a later recording session. Proposed modifications shall be submitted in 8 copies. Final modifications, after negotiations, shall be submitted in 8 copies (including one reproducible).

1.8.5 FINAL CONSTRUCTION DOCUMENTS

Each distributed set shall consist of full-size paper drawings, specifications, submittal register, design analysis, and a CD-ROM disk(s) containing all of the final design documents (e.g. drawings, specifications, submittal register, and design analysis files). Provide documents complete, accurate, and explicit enough to show compliance with the Contract requirements and to permit construction. Drawings and specifications illustrating systems proposed to meet the requirements of the Contract shall reflect proper detailing for each such system to assure appropriate use, proper fit, compatibility of components and coordination with the specifications and design analysis required by this section. Coordinate drawings to ensure there are no conflicts between design disciplines and between drawings and specifications. See additional requirements in PART 3 EXECUTION. During and upon completion of the project, the accepted design documents shall be corrected to reflect as-built conditions in accordance with Section 01780 CLOSEOUT SUBMITTALS.

1.8.5.1 Final Construction Drawings

In addition to the required number of hard copies of final design documents (e.g. drawings, specifications, submittal register, and design analysis), construction document (100 percent final design) drawings, and record (i.e. as-built) drawings after the completion of the project shall be submitted on CD-ROM disk in the CADD format required by the Contract. Furnish four CD-ROM disks, one each for the Area Office, Corps of Engineers' District Office, Corps of Engineers' Dyess Resident Office, and and the User. On the CD-ROM disk include the electronic .dgn or .dwg CADD drawing files, the CADD drawing files in .CAL format (CADD files converted to .CAL) for viewing on MaxView **(AM#2) and SourceView Readers**, and an Excel spreadsheet listing for each drawing the drawing number, sequence number, level/layer assignments, line colors, line weights, and line types. See additional requirements in PART 3 EXECUTION.

1.8.5.2 Computer Aided Design and Drafting (CADD) Systems

Within 10 days of Contract Notice to Proceed, furnish for approval samples of CADD electronic files created on the equipment and software to be used for this work. CADD work will not proceed until the Contractor's proposed CADD system and resulting CADD files have been acceptably demonstrated to

work on the Corps of Engineers' Fort Worth District Office and the User's CADD systems.

1.8.5.3 Specifications and Design Analysis

Specifications and design analysis shall be provided in hard copy and on the same CD-ROM disk as the drawings, Microsoft Word for Windows format (Version Word 2000, but shall be compatible with the version used at Dyess Air Force Base). The Division 1 sections included in the Contract shall be reprinted in the final 100 percent construction specifications. Hard copies of the specifications and design analyses shall be bound separately in 3-ring binders. Each set of documents shall have its own Table of Contents. See additional requirements in PART 3 EXECUTION.

1.8.5.4 Final Document CD's

All Automated Computer Aided Design (ACAD) files, Technical Specification Files, and Design Analysis files shall be remitted to the Government on 12 CM (5") Single Sided CD ROM disks, which stores 680MB and can be read with 3000 KB/S-20X (Read Only) Drive. Minimum required disk life is 30 years. All files, whether CADD or those created by a Windows based word processor, spread sheet, or database program respectively, shall be provided in their original uncompressed format.

1.8.6 DESIGN DOCUMENTS

Design documents shall include construction drawings, specifications, submittal register, design analysis, and drafts of DD Form 1354. Detailing and installation of all equipment and materials shall comply with the manufacturers' recommendations. Construction drawings and specifications shall not make reference to RFP requirements. The Contractor, including designers, shall visit the site and make other trips as necessary during the design to accomplish the work. **(AM#2)** **(Deleted Sentence) .**

1.8.6.1 Drawings

See paragraph SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS AND DESIGN ANALYSES, subparagraph "FINAL CONSTRUCTION DOCUMENTS."

1.8.6.2 Specifications

Specifications shall be in sufficient detail to fully describe and demonstrate the quality of materials, the installation and performance of equipment, and the quality of workmanship. Specifications shall conform to the Construction Specifications Institute (CSI) 16-Division 3-Part format and follow the CSI's section numbering system defined in CSI MasterFormat. No two sections shall have the same section number. Division 1 specifications shall consist of the Division 1 sections included in the Contract. The specifications shall clearly identify the specific products chosen to meet the requirements of the Contract (manufacturers' brand names and model numbers or similar product information). Turfing sections shall indicate planting dates.

1.8.6.3 Design Analysis

Describe the design of each discipline of work, including all features and the necessary calculations, tables, methods, and sources used in determining equipment and material sizes and capacities. Provide sufficient information to support the design of the various categories such

as, but not limited to, architectural, interior design, structural, mechanical, electrical, civil including grading, drainage, paving, environmental, and outside utility services, and Contract included items.

1.8.6.4 Sustainable Project Rating Tool (SPiRiT)

In addition to other requirements, provide environmentally responsible design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, and other resources. See Section 01000 STATEMENT OF WORK, Chapter 3 SUSTAINABLE DESIGN CONSIDERATIONS for additional information.

a. **(AM#2) Document design sustainability utilizing the** Sustainable Project Rating Tool (SPiRiT) which is derived from The U.S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System **(AM#2)** _____. The Sustainable Project Rating Tool (SPiRiT) is included in the Appendices and can also be viewed at the following web site:
http://www.cecer.army.mil/Sustdesign/SPiRiT.cfm

1.8.6.5 DD Form 1354

The 1354 process consists of preliminary and final drafts of the DD Form 1354, TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY, and a Final DD Form 1354. DD Form 1354 is required so that Dyess Air Force Base can update their real property maintenance records. Submit the preliminary drafts with each of the design submittals and a final draft within 30 days of the Government's acceptance of the 100% construction documents. These drafts shall contain as many of the resource code items with cost and quantity data as can be developed from the Contractor's submittal documents. The Government will use the final DD Form 1354 draft to develop the DD Form 1354 to be submitted to Dyess AFB. The form, a sample of a completed form, and a general list of resource codes with cost and quantity data are included in the ATTACHMENTS. An electronic file of the form, DD1354.frl, for use with Delrina Perform Pro Form Filler, version 16 Jul 1992, or its successor software Form Flow Filler, Version 2.22 (March 5, 1999)is located on the Solicitation and Contract CD-ROM disks.

1.8.7 DESIGN SUBMITTALS

1.8.7.1 General

The Contractor shall schedule the number and date of the design submittal phases and conferences. Design submittals are required at the design development (preliminary 60 percent), construction drawing (final 100 percent design) stages, and at the corrected construction drawing (final design) stage. The number, date, and contents of the design submittal phases shall be reflected in the project schedules. An authorization letter to start work will be provided separately by the Contracting Officer for each phase of the design. See paragraph "Government Design Review and Acceptance". See additional requirements in PART 3 EXECUTION..

1.8.7.2 Design Development (60 Percent Design) Submittal

The 60 percent design submittal includes the 60 percent in-progress building design and the 100 percent complete site work and exterior utilities. **(AM#3) Offerors are encouraged to submit design data for sitework at the earliest stage feasible and may submit sitework design**

exclusive of building design data. A separate staking plan may be desireable to proceed with construction as early as feasible. These documents shall be packaged and stamped "For Review Only - Design Development (60% Design)". Each sheet of the drawings shall also be stamped except sitework and exterior utilities which will be stamped "Construction Documents (100% design)". See additional requirements in PART 3 EXECUTION.

1.8.7.3 Construction Documents (100 Percent Design) Submittal

The 100 percent design submittal includes complete site and utility design and building design and shall be stamped "For Review Only -Construction Documents (100% Design)", and each sheet of the drawings shall also be stamped. Contractor shall make final proposal of all materials and finishes at this stage.

1.8.7.4 Compliance Check Design Submittal

The compliance check design submittal(s) after the Government review of the 100 percent complete site and building designs shall be stamped "Construction Documents (100% Corrected Design)"; and each sheet of the drawings shall also be stamped and signed by the Designer of Record.

1.8.7.5 Insufficient Design Submittals and Delays

No additional time for completion of the contract will be granted to the Contractor due to insufficient design submittals. Delays caused by the Contractor in completion of the Design Development (60 percent design), Construction Documents (100 percent design), or the 100 percent corrected design will not be considered as valid reason to delay the entire project within the specified project duration.

1.8.7.6 Deviations or Betterments

The Contractor shall bring to the Government's attention any deviations or betterments made to the RFP and Contractor's proposal documents. These shall be summarized in letter form with reasons and highlighted or clouded details on the applicable drawings and documents submitted. See Section 00800 SPECIAL CONTRACT REQUIREMENTS for additional requirements concerning betterments.

1.8.7.7 Review Design Documents

The Contractor shall submit all drawing design documents on black-line media with "FOR REVIEW" stamped in 1/2-inch high letters in the lower right corner in red ink. Specifications and Design Analyses shall be hard copy with "FOR REVIEW" stamped in 1/2-inch high letters in the lower right corner in red ink. The Contractor shall submit Contractor-approved documents on black-line media with "APPROVED FOR CONSTRUCTION" similarly stamped.

1.8.8 DESIGN REVIEWS

Design reviews will be held at Base Civil Engineer Office, Dyess Air Force Base, at the Design Development (preliminary 60 percent), Construction Documents (final 100 percent), and corrected final stages of the final design in accordance with the Contractor's Project Schedule. The Government shall have thirty (30) calendar days review period for each submittal (Design Development (60 percent design) and Construction

Documents (100 percent Design)) and fourteen (14) calendar days review period for resubmittal of the 100 percent Design (including the 100% final site workand utilities, and foundation portion of the 60% Submittal and the Compliance Check Design) after incorporation of final review comments. Additional design review conference(s) between the Contractor and the Government may be held after submittal of the Design Development (60 percent) or the Construction Documents (100 percent) design(s) if the Government determines them necessary. The time for Government review will be calculated from the date of receipt of the design submittals at the Government address to the date annotated conformance review comments are mailed to the Contractor.

1.8.8.1 Review Intent

Reviews will be for conformance with the technical requirements of the Contract. If the Contractor disagrees technically with any comment and does not intend to comply with the comment, the Contractor shall clearly outline, with ample justification, the reasons for noncompliance within 5 days after receipt of these comments in order that the comment(s) can be resolved. The Contractor shall furnish disposition of all comments, in writing, with the next scheduled submittal. If the Contractor believes the action required by any comment exceeds the requirements of the Contract, the Contractor shall immediately notify the Contracting Officer in writing and take no action regarding this matter until the matter is resolved.

1.8.8.2 **(AM#3) DELETED**

1.8.8.3 Review Document Distribution

For each review, review documents shall be sent, in the quantity indicated, to the addresses listed below. The documents will be in their then present "on-board" design status. All documents must contain an index of contents. Work shall, however, continue up to the time of the review conference date(s) when 2 copies of then-current design documents will be brought to the issuing office for the conference review. Originals of transmittal letters shall be sent to the Area Engineer, address as shown below, and copies should accompany each mail package. Transmittal letters shall indicate distribution by use of the "ATTN" code shown in the address.

No. of Copies

(**8***- Review) District Engineer
(2- Final) US Army Engineer District, Fort Worth
ATTN: CESWF-EC-AM (Mr. Wayne McDonald))
P.O. Box 17300
Fort Worth, TX 76102-0300
817-886-1893
wayne.mcdonald@swf02.usace.army.mil
<mailto:wayne.mcdonald@swf02.usace.army.mil>

***If sitework submittals are submitted without building design data, furnish only 2 copies to CESWF-EC-AM. (AM#3)**

(7- Review) 7 CES/CECN
(3- Final) ATTN: John Ford
710 Third Street
Dyess AFB TX 79607-1670
915-696-5618

John.ford@dyess.af.mil <mailto:John.ford@dyess.af.mil>

(8- Review) HQ ACC/CECW
(3- Final) ATTN: Conrad Browe, Room 326
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2769
757-764-0810
Conrad.Browe@Langley.af.mil
<mailto:Conrad.Browe@Langley.af.mil>

(2- Review) Central Texas Area Office
(2- Final) ATTN: CESWF-AO-C (Mr. Atlan Citzler)
4622 Engineer Drive @ 79th Street
Fort Hood, TX 76544
(P.O. Box 757
Killen, TX 76540-0757)
254-532-3047; ext 5401

(2- Review) US Army Corps of Engineers
(2- Final) Dyess Project Office
ATTN: CESWF-PO-D (Kenneth Atchison)
818 3rd Street
(P.O. Box 9605)
Dyess Air Force Base, TX 79607-9605
915-692-8601
Ken.t.Atchison@swf02.usace.army.mil
<mailto:Ken.t.Atchison@swf02.usace.army.mil>

1.8.8.4 Additional Review Time

If for any reason the Government requires more time than that stated for review, then the Contractor will be granted an extension of time equal to the number of calendar days of delay.

1.8.8.5 Government Design Review and Acceptance

Government personnel will present review comments for discussion and resolution. Copies of comments, annotated by the Designer of Record with **(AM#3) preliminary corrective action indicated,** will be made available to all parties at least **(AM#2) 5 calendar days** prior to the conference. Review conferences will be scheduled by the Contractor. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments will be incorporated into the Documents. **(AM#2) With ten days of review conferences, the Contractor shall distribute copies of annotated comments to all agencies on the Distribution List in the same quantity as design documents required for the corresponding submittal.** On receipt of final corrected design documents (with all backcheck comments incorporated) that are acceptable, the Contracting Officer shall notify the Contractor in writing that the documents are accepted and construction may begin. Furnish the final design and construction documents in accordance with paragraph "Number of Copies." The Government, however, reserves the right to not accept design document submittals if outstanding unincorporated comments are of too great a significance. In this case, every effort shall be made during follow-up action between the Contractor and the Fort Worth District to resolve conflicts and problems such that documents can be accepted. However, if final submittal(s) are incomplete or deficient, requiring correction by the Contractor and resubmittal for review, the cost of rehandling and reviewing will be deducted from payment due the Contractor at the rate of $500.00 per

submittal.

1.8.9 FINAL CONSTRUCTION DOCUMENTS

Following the last submittal, the Contractor shall forward the completed original set of reproducibles for acceptance. Upon Government acceptance of corrected 100 percent final design documents, the original will be returned to the Contractor for reproduction purposes. The Contractor shall be responsible for reproduction. Within 7 calendar days after acceptance, the Contractor shall mail 1 complete set of the accepted design documents to the Fort Worth District, CESWF-EC-AM Attn: Wayne McDonald, and 5 complete sets to the Corps of Engineers' Area Engineer, Central Texas Area Office, Dyess Project Office. Each set shall consist of full size paper drawings, specifications, design analysis, and CD-ROM disk(s) containing the Contract Award CD files (contract, proposal, contract viewer, etc.) and all construction drawings, specifications, submittal register, and design analysis files). Arrange the construction document files in a Construction Documents folder with subfolders for drawings, specifications, design analysis, submittal register, etc. Modify the "aYYr00NN.con" file so that the drawings' .cal files can be viewed through the Contract Viewer. During and upon completion of the project, the accepted construction documents shall be corrected to reflect as-built conditions in accordance with Section 01780 CLOSEOUT SUBMITTALS. After acceptance, changes to the final construction documents shall not be made without the Contracting Officer's knowledge and acceptance.

1.8.10 COORDINATION

1.8.10.1 Written Records

The Contractor shall prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish copies to the Contracting Officer and all parties involved within 5 working days. Include subject, names of participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

1.8.10.2 Design Needs List

Throughout the life of the Contract the Contractor shall furnish the Contracting Officer a biweekly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, and the name of the individual or agency responsible for satisfying the action item and remarks. Maintain the list on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Mail copies of the lists to both the Contracting Officer and the agencies tasked with supplying the information.

1.8.11 REVISIONS TO THE ACCEPTED DESIGN

(a) The accepted design will be used by all parties involved in construction and in administration of the Contract. Therefore, it is imperative that the design documents be kept up to date and an effective system of making and distributing changes be implemented. Since changes to the design increase risk of construction errors and deplete available

administrative resources, every effort shall be made to minimize revisions to the accepted design. One of the measures of the Contractor's effectiveness of management will be how well the goal of minimizing changes to the accepted design is met. The use of effective quality control during design and utilization of experienced and capable designers are some of the means that are expected to be used to accomplish this goal.

(b) If revisions to the accepted design become necessary, the procedures described in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES will be used to accomplish the revisions. The revisions will be considered a "Variation" and shall be submitted as a Government Review (Resident Engineer) submittal. All the requirements in paragraph: "Variations" in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES will apply to revisions to the accepted design. All design analysis and calculations necessary to establish that the proposed revision satisfies applicable design requirements shall be included in the submittal.

PART 2 PRODUCTS

2.1 DESIGN DEVELOPMENT (60 PERCENT PRELIMINARY) DESIGN REQUIREMENTS

Preliminary design documents shall include all applicable plans, details, and specifications specified in the paragraph CONSTRUCTION DOCUMENTS (100 PERCENT PRELIMINARY) DESIGN REQUIREMENTS, drawn to 60 percent completion or more, unless otherwise indicated. Identify and resolve conflicts in the design requirements, between the design requirements and the Contractor's design proposal, or those due to lack of thorough understanding of the nature and scope of work prior to submittal of the 60 percent design. Drawings, design analysis, and specifications will be reviewed for compliance with the Contract design requirements at this design submittal. Submit the following:

2.1.1 **(AM#2) Deleted**

2.1.2 Drawings

Furnish all drawings that are required for the 100 percent submittal. Except for site work and exterior utilities all drawings shall be developed to approximately 60 percent completion. Site work and exterior utilities shall be 100 percent complete. The drawings shall be fully coordinated with the design analysis and specifications.

2.1.3 Specifications

Provide all specification sections required for 100 percent submittal. Specifications for site work and exterior utilities) shall be 100 percent complete. All other specifications required for the completion of the building(s), including turfing, and landscaping shall be at least mark-ups of the required technical and trade sections. Include the identification of the "author" of the industry guide specifications used, any mandatory guide specifications required in this Contract, and a project table of contents listing all sections to be included in the project.

2.1.4 Submittal Register

Prepare a Submittal Register as specified in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES and paragraph CONSTRUCTION SPECIFICATIONS, subparagraph "Submittal Register," of this Section. Submittals for site work and utilities shall be 100 percent complete. Submittals for all other

work shall be developed to the extent required to support the level of design included in this submittal. Submit a copy of the "Subreg" folder with the updated files and program and four hard copies of the register with this design submittal.

2.1.5 Design Analysis

The design analysis shall give the basis for design for all disciplines and should establish specific goals, objectives, and priorities for the design of this project. Identify, explain, and document use of design criteria and how the design meets goals, objectives, and priorities. The design analysis shall comply with SWD-AEIM, Chapter IX, and include narrative description and analysis of all building systems, appropriate checklists, calculations, and catalog cut sheets of equipment used in the design.

2.1.6 **(AM#2) Deleted**

2.1.7 Sustainable Project Rating Tool (SPiRiT)

(AM#2) In accordance with the sustainable design requirements in PART 1 GENERAL's DESIGN DOCUMENTS' subparagraph "Sustainable Project Rating Tool (SPiRiT)", and using the Sustainable Project Rating Tool (SPiRiT), Version 1.4, provide a self-assessment of the achievement to-date of the sustainability features of the housing units (see Volume IV ATTACHMENTS for the Sustainable Project Rating Tool manual and rating sheets). For each element where you will meet (or exceed) the requirement, discuss how you will meet the stated requirement. Use the Microsoft Word version of then SPiRiT tool (SPiRiT v.1.4 Final.doc) for documentation, available on the Internet at http://www.cecer.army.mil/Sustdesign/SPiRiT.cfm, or use the version that is on the Solicitation Contract CD. Insert the documentations in the document immediately after the requirement text for each element.

2.1.8 Demolition

Provide the site clearing, demolition, and removal drawings of the site to receive the new housing, 100 percent complete, ready to start work.

a. Site Demolition Drawings (Removal Plan)

Show new work and removal work on separate drawings. The type and the scope of removal work intended shall be clear from an inspection of the documents. Keyed notes for removal are allowed.

The removal plan shall show the existing physical features and condition of the site before construction. Include the field survey to show all above and below ground utilities; buildings, drives, roads and parking areas, walks, and vegetation; and such facilities as retaining walls, underground storage tanks, foundations, existing contours, etc. Each physical feature to be removed shall be as indicated on the standard legend sheet, a legend on the removal plan, and properly noted: to be removed, to remain, or to be relocated.

b. Building Demolition Drawings (Removal Plan(s))

The type and the scope of removal work intended shall be clear from an inspection of the documents. Show the existing physical features and condition of the site before construction. Show all walls, fixtures, and utilities to be removed. Each physical feature to be removed shall be as

indicated on the standard legend sheet, a legend on the removal plan, and properly noted: to be removed, to remain, or to be relocated.

2.1.9 Civil Design

The drawings shall be 100 percent complete, ready for start of construction. Drawings shall fully describe the type and the scope of work required. Include all necessary and required details, be thoroughly checked, and be fully coordinated with the Construction Specifications and all other Construction Documents.

2.1.10 Landscaping Design

Provide Landscaping Plan, including sprinkler system layout, and any details required for this level of design.

2.1.11 Architectural Design

60 percent architectural drawing submittal shall be a complete set of architectural drawings without large scale details. All other drawings shall be complete except referencing of the large scale details. Room finish schedule, and door, window, and louver schedules, shall all be complete except for references to details.

2.1.12 Interior Design

Provide SID Notebook(s) and design analysis.

2.1.13 Structural Design

Provide foundation plans and details. Provide details and notes for required structural work.Building structural members shall be at least outlined. Provide elevation views, sections, and details necessary to illustrate the design at a 60 percent level of completion. Roof framing plan(s) shall show sufficient details to clearly indicate the type of framing system used, size, and spacing of members and their elevations.

2.1.14 Mechanical Design

Provide plans, piping diagrams, sections, flow diagrams, details, schedules, and control diagrams/sequences as necessary to define the required design intent at this level of design. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Unless otherwise indicated, all floor plans shall be drawn at a minimum 1/8-inch = 1'-0" scale and shall show room names and numbers. Provide preliminary mechanical room sections to ensure that major equipment items, piping, and ductwork will fit as designed. For the 60 percent submittal, all supply and return mains shall be shown as double-lined although branch ducts, takeoffs, and ductwork to diffusers may be single-lined. Piping 6 inches and larger shall be shown as double-lined for the 60 percent submittals.

Complete Attachment C for mechanical room sizing.

2.1.15 Electrical Design

Fully coordinate the 60 percent design drawings with the design analysis. Provide sufficient plans, single-line diagrams, riser diagrams, details, and schedules as necessary to define the required design intent for this

level of design. Indicate all circuits, circuit breakers or fuse locations, panelboards, and PDUs known at this level of design.

2.1.16 Fire Protection Design

Provide the Life Safety Plan and the Fire Protection site and floor plans, complete. Fire protection details shall be sufficient for this level of design. Fire protection plans and details shall be approved by the fire protection engineer.

2.1.17 Environmental Design

Provide 60 percent completed document of the following item[s] for the 60 percent submittal:

a. Environmental Survey Sampling Plan for Existing housing demolition.

b. Basic Stormwater Pollution Prevention Plan

c. Storm Water Pollution Prevention Plan, Plans for Storm Water Controls, and Implementation of Pollution Prevention Plan

d. Design Analysis

2.2 CONSTRUCTION DOCUMENTS (100 PERCENT DESIGN) REQUIREMENTS

All drawings included in the required technical data for the proposal submission shall be developed to 100 percent completion. In addition to the individual utility plans, submit a combined utility plan drawn to the same scale as the individual utility plans. Furnish mechanical and electrical plans, with complete schematics, to show all air conditioning, plumbing, and electrical work. All design and calculations shall be performed by licensed professional engineers or architects. The following design documents shall be provided in the design submittals.

2.2.1 SITE/INFRASTRUCTURE

2.2.1.1 Environmental Protection Plan

Prepare and submit an Environmental Protection Plan in accordance with the requirements of Section 01355D ENVIRONMENTAL PROTECTION FOR DYESS AIR FORCE BASE. As an Appendix to the Environmental Protection Plan, the Contractor shall include copies of all environmental reports, permits, approvals, applications, and associated documents as an Appendix to the Environmental Protection Plans.

2.2.1.2 Location Plan and Vicinity Map

The Location Plan and Vicinity Map provided in the Request For Proposal (RFP) shall be updated as necessary and included in the drawings. The Location Plan shall include the Contractor's Access Route, Staging Area, stockpile areas, and the Project Site.

2.2.1.3 Removal Plan

The removal plan will show the existing physical features and condition of the site to receive the new housing before construction. Each physical feature to be removed shall be hatched as indicated on the standard legend sheet, a legend on the removal plan, and properly noted: to be removed, to

remain, or to be relocated. The Removal Plan shall be prepared at the same drawing scale and use the sheet boundaries as the Site Plan.

2.2.1.4 Site Plan

The Site Plan shall show all the site layout information necessary to field locate the houses, street work, driveways, sidewalks, patios, privacy fence, security fence, recreation areas, and all other appurtenances to be constructed as part of the project. All major site work to be constructed will be dimensioned for size and location. The Site Plan will identify all site-related items such as: curbs, driveways, walks, retaining walls, mechanical units, electrical transformers locations, etc. in accordance with a standard legend sheet or with additional legends or notes. Drawing scales of 1" = 30' or 1' = 40' are acceptable scales for the Site Plan. The Contractor shall consider the project's construction area, drawing legibility, number of sheets required in choosing the drawing scale. The Site Plan, prior to adding the dimensions and notes, should serve as the base sheet to other Plans, such as: Utilities Plan, Grading and Drainage Plans and Landscape Plan. Existing and proposed contours or utility lines shall not be shown on Site Plan. Physical features that will remain after the proposed construction has been completed shall be shown. This plan, or the Location Plan, will also show any free zones, construction limits, etc. Whenever the Site Plan occupies more than one sheet of drawings, a Key Plan shall be included. Additional plans showing specific areas of the site in smaller scales can be included if more detail is necessary.

2.2.1.5 Site Details

The Contractor shall provide details for all site furnishings, patios, privacy fence, accessories, handicap accessible ramps, signage, and any other site structure or item requiring a detail for clarity and construction accuracy. **(AM#2) Use the SWD-AEIM standard details for civil design work such as sidewalks, curb and gutters, pavement, and drainage structures.**

2.2.1.6 Landscape Plan

A detailed Landscape Plan showing trees, shrubs, ground covers, seeded and sodded areas, shall be prepared by the Contractor. The Landscape Plan shall be prepared by a fully qualified, experienced professional Landscape Architect. The Contractor shall specify types of plant materials that are locally grown, commercially available and acclimated to the project environment. The Landscape Plan shall include a plant materials schedule or listing. This schedule shall include botanical names, common names, key, size and the method of transplanting. The Landscape Plan shall also show all un-surfaces ground areas disturbed by construction within the project limits with these areas shown to be seeded or sodded as required.

2.2.1.7 Landscape Details

The Contractor shall verify the methods of planting to meet the project site/installation requirements and provide the necessary Landscape Details to perform the contract design work. Details shall reflect local practices and conditions for installation.

2.2.1.8 Grading and Drainage Plan

A final grading and drainage plan shall be provided at the same scale as the site plan. New and existing grading contours shall be indicated at

1-foot contour intervals. Indicate the finished floor elevation of new houses and structures. Plans shall show the layout of the new and existing storm drainage and roof drainage systems. Provide spot elevations at building corners, changes in grade, etc. Storm drainage lines and structures shall be labeled. The rim elevation of all manholes, curb inlets, and area inlets shall be indicated. Provide location and description of benchmarks and indicate vertical and horizontal datums.

2.2.1.9 Storm Drain and Culvert Profiles

Provide profiles of any new storm drains and culverts showing new and existing grades, new and existing utilities, pavement sections in detail, pipe diameters and lengths, pipe slopes, invert elevations, etc. Class and gauge of all storm drain and culvert pipes shall be provided.

2.2.1.10 Drainage Structure Details

Provide typical details of all storm drainage structures. Unless otherwise directed, use the details in the Southwestern Division's SWD-AEIM Manual. The use of alternate details shall be approved prior to submitting the final design documents. Show dimensions on either the storm drain schedule, the storm drain profiles, or on the storm drain structure detail drawings.

2.2.1.11 Storm Water Pollution Prevention Plan (SWPPP) Site Map

Provide a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, areas which will not be disturbed, locations of major structural and nonstructural erosion controls identified in the SWPPP, locations where stabilization practices are expected to occur, locations of off-site material, waste, borrow or equipment storage areas, surface waters (including wetlands), and locations where storm water discharges to a surface water.

2.2.1.12 Erosion Control Details

Provide details of Best Management Practices used to control erosion.

2.2.1.13 Typical Pavement Sections and Details

Provide typical driveway, sidewalk, patio, pavement overlay, curb and gutter, curb ramps, and road repair sections and details.

2.2.1.14 Typical Driveway Pavement Joint Layout Plans

Provide typical pavement joint layout plans for each type of housing unit provided. Each type of joint shall be shown with a different symbol and a joint legend provided. Under no circumstances shall pavement joint layout plans be combined with any other plans.

2.2.1.15 Sanitary Sewer and Water Plans

Sanitary sewer and water plans shall show locations of new and existing mains and service lines, elevation of sewer pipe, valves, connections. thrust blocks, manholes, etc. Scale to match site plans.

2.2.1.16 Natural Gas Plans

Scale to match site plans for natural gas plans. Natural gas distribution system plans shall include, but not limited to, the following:

--Locations of existing mains and service lines, including those to be removed.
--Locations of new gas service mains and service lines, including points of connection to existing piping.
--Trench installation Details for both the main lines and the service lines.
--Valve Box Details.
--Gas Service Regulator Assembly Detail.
--Cathodic Protection Details.

2.2.1.17 Electrical Distribution Plans (Scale to match site plan)

Electrical distribution plan shall show site lighting (street and walkway), primary cable routing (new and existing), pad-mounted transformers and switches, and secondary service laterals. Scale to match site plans.

Show the following:

-- Site lighting (street and walkway)
-- Primary cable routing (new and existing)
-- Pad-mounted transformers & switches
-- Secondary service laterals

2.2.1.18 On-Site One Line Diagram

2.2.1.19 On-Site Distribution Transformer Schedule Schedule (with the following headings)

--Transformer Designation
--Transformer Size (KVA)
--Building(s) Served
--Primary Phase(s) and Circuit to which connected.

2.2.1.20 On-Site Details(Site Lighting, Trenching, Etc.)

2.2.1.21 Site/Infrastructure Specifications

Construction specifications shall be complete and fully coordinated with the drawings, **(AM#2) and shall include sections covering demolition; clearing and grubbing; earthwork; excavation, trenching, and backfilling for utilities; water distribution systems; sanitary sewers; storm drainage system; gas distribution system; building excavation, filling and backfilling; subbase courses; aggregate base courses; hot-mix asphalt for roads; concrete pavement; concrete sidewalks; concrete curbs and gutters; and fencing**. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All references that have not been used in the body of the specification shall be edited from the specification.

Required Site Infrastructure Specifications (100% Complete):

2.2.2 HOUSING UNITS

Submit for each housing type.

a. Floor Plans: (Scale 1/4" = 1'-0")

For each housing type, show the following:

-- Overall dimensions
-- Room description with dimensions and areas
-- Furniture layouts
-- Vanities
-- Appliances (including occupant-owned washer, dryer, and micro-wave oven; and contractor-furnished refrigerator, stove, and dishwasher)
-- Plumbing fixtures
-- Kitchen layout
-- Door swings
-- Garage locations
-- Patio, Walks and Private fencing
-- Exterior/Interior bulk storage
-- Service (trash) area
-- Furnace, AC units, and hot water heater location
-- Vents/registers/diffusers
-- Calculated gross and net floor areas
-- Electrical switches, outlets, telephone jacks, CATV jacks
-- Electric light fixture locations and schedule
-- Equipment Layout
-- Smoke/carbon monoxide detectors

b. Exterior Elevations: (Scale 1/4" or 1/8" = 1'- 0")

For each housing type, show all sides of a building complete with notes indicating the exterior finish materials shall be shown.

c. Interior Elevations: (Scale 1/4" = 1'- 0")

Show the following:

-- Kitchen
-- Bathrooms

d) Building Cross Sections for Each Type of Building: (Scale 1/4" = 1'- 0")

For each housing type, show the following:

--Structural system
--Building materials
--Finishes
--Vertical dimensions

e. Typical Wall Section: (Scale 3/4" = 1'- 0")

For each housing type, show the following:

--Typical wall
--Foundation
--Floor and roof section
--Materials
--Cavity wall
--Party wall w/STC rating
--Fire rated construction with UL or Gypsum Association File No.
--Thermal Insulation

f. Finish Schedule

Show finish schedule of all rooms.

g. Fire and Sound Rated Assemblies

Show the construction of fire and sound rated assemblies in detail and note on the drawings the tested design upon which the construction is based. Note any modification to materials or method of construction. Detail all penetrations of rated partitions.

h. Detail References

All details shall be referenced to floor plans, elevations or sections.

i. Kitchen Cabinet Elevations

Kitchen cabinet elevations shall note cabinet sizes.

j. Foundation and Floor Slab Plans (Scale: 1" = 1'-0")

For Each Housing Type show:
--Dimensions and materials of foundation system (If not shown on any other typical drawing)

k. Structural Floor and Roof Framing Plans (SCALE: 1" = 1'-0")

For Each Housing Type show:
--Structural framing members and spacing dimensions
--Details of any main structural framing members or connections such as beams, headers, etc.

l. Architectural Rendering

Contractor shall provide ground level perspective artist's renderings of typical family housing units completed with walks, parking, and landscaping. Renderings shall be no smaller than 14 inches by 18 inches or larger than 28 inches by 36 inches, multi-colored, and shall be suitably titled, matted, and framed.

m. Color Boards

Color Boards shall be submitted showing color and pattern of materials prepared for interior and exterior finish materials, including floor, wall and ceiling finishes, roofing, siding, and trim shall be submitted to Contracting Officer on 8-1/2 inches by 11 inches sample boards/binder format.

n. Consumer Information for Handicapped Requirements

The Contractor shall furnish a report including drawings in accordance with the Uniform Federal Accessibility Standards, paragraph 4.34.4 "Consumer Information" for the modified and adaptable features of each applicable unit type of family housing.

2.2.3 MECHANICAL AND PLUMBING REQUIREMENTS

Required Plans, Diagrams, Schedules, and Details on Unit Mechanical Drawings (100% Design Stages):

a. Mechanical Floor Plan: (Scale: 1/4" = 1'-0")

The floor plans shall show all principle architectural features of the building which will affect the mechanical design. The floor plan shall also show the following:

--Room designations
--Mechanical legend and applicable notes
--Location of all ductwork or piping (double line ductwork required)
--Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards)
--Exhaust fan and range hood location
--Size of all ductwork and piping shown
--Thermostat location
--Location of heating equipment (i.e., furnace)
--Location of air conditioning equipment
--Return air paths (i.e., undercut doors, transfer grilles)
--Flue piping - size and location
--Piping diagram for forced hot water system (if used)
--Fuel supply and return piping

b. Equipment Schedule Sheet:

Complete equipment schedules shall be provided. Schedule shall also include:

--Capacity
--Electrical characteristics
--Efficiency (if applicable)
--Manufacturer's name
--Any optional features to be provided
--Physical size

c. Details

Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of Design. All roof and exterior wall penetrations shall be detailed on the drawings. (Details shown on the architectural sheets need to be repeated here.)

d. Plumbing Floor Plan: (Scale: 1/4" = 1'-0")

The floor plan shall show all principal architectural features of the building which will affect the plumbing design. The floor plan shall also show the following:

--Room designations
--Fixture Schedule
--Location of utility entrances
--Waste, vent, and hot and cold water pipe locations and sizes
--Fixture designations

--Location of hot water heater
--Plumbing riser diagram

e. Plumbing Plans

Separate plumbing plans will not be required if sufficient information can be shown on the mechanical plans to meet the requirements shown above.

2.2.4 ELECTRICAL REQUIREMENTS

a. Electrical Floor Plan: (Scale: 1/4" = 1'-0")

The floor plans shall show all principle architectural features of the building which will affect the electrical design. The floor plan shall also show the following:

--Room designations
--Electrical legend and applicable notes
--All lighting fixtures, properly identified
--Location of all smoke detectors
--Location of telephone outlets
--Location of television outlets
--All switches for control of lighting
--All receptacles
--The location and designation of all panelboards. Plans should clearly indicate type of mounting required (flush or surface) and be reflected accordingly in specifications.
--Service entrance (conduit and main disconnect)
--Location, designation and rating of all motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment.
--Show all necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

b. Building Riser Diagram (from pad-mounted transformer to unit load center panelboard)

Indicate the types and sizes of all electrical equipment and wiring. Include grounding and metering requirements.

c. Unit Load Center Panelboard Schedule(s)

Schedule shall indicate the following information:

--Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting)
--Branch Circuit Designations.
--Load Designations
--Circuit Breaker Characteristics (Number of Poles, Trip Rating, AIC Rating)
--Branch Circuit Connected Loads (AMPS).
--Any Special Features

d. Lighting Fixture Schedule

Schedule shall indicate the following information:

--Fixture Designation
--General Fixture Description
--Number and Type of Lamp(s)
--Type of Mounting
--Any Special Features

e. Details

Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design.

2.2.5 SUSTAINABLE PROJECT RATING TOOL (SPiRiT)

(AM#2) In accordance the substantiation requirements, update the Contractor's Sustainable Project Rating Tool (SPiRiT) sheets, indicating the status of design related to the listed elements and the achievement of these elements.

2.2.6 HOUSING UNIT SPECIFICATIONS

2.2.6.1 Site Infrastructure Specifications

a. Asbestos Abatement

The Contractor shall review attached asbestos surveys and edit specification Section 13280 ASBESTOS ABATEMENT accordingly. The specification shall identify all asbestos-containing materials to be removed from the units scheduled for demolition and describe all control and removal methods for each type of material. Quantities of each type of material shall be identified in the specification. Questions regarding the asbestos surveys shall be submitted to Contracting Officer. If the Contractor proposes to allow any Category I nonfriable asbestos-containing materials to remain in the units during demolition, such materials shall be identified in the specifications. All specification requirements shall comply with applicable federal and state regulations.

b. Lead-Based Paint

The Contractor shall review attached lead-based paint survey. Any lead-based painted architectural components proposed for removal prior to demolition shall be identified in the specifications and the removal procedures and associated health and safety protocols shall be described. Lead-based painted surfaces that will remain in the units for demolition shall be identified. The specifications shall also discuss proposed disposal of lead-based painted components or surfaces and describe any disposal testing (toxicity characteristic leaching procedure or tclp).

2.3 DESIGN ANALYSIS & DESIGN CALCULATIONS

Design analysis and design calculations shall include complete site and housing unit descriptions and design calculations for storm drainage improvements, utility distribution systems, structural elements, electrical and mechanical systems, and roadway pavement and shoulder design.

2.3.1 STORM DRAINAGE SYSTEM CALCULATIONS

Storm Drainage System Calculations shall include the following:

a) Drainage area map showing boundaries of each drainage area and respective drain inlet or culvert.

b) Storm run-off calculations for each drainage area.

c) Tabulation of capacities of new storm drains including: diameter and slope of storm drain pipes, design storm discharge and velocity for each storm drain pipe, maximum discharge capacity of each storm drain pipe, headwater depth of each culvert during design storm discharge.

d) Hydraulic capacity calculations for each new curb and area inlet.

2.3.2 MECHANICAL DESIGN ANALYSIS

Water Supply Calculations: Submit calculations at Final (100 percent) design stages to determine correct main water supply to each unit and/or building.

2.3.3 ELECTRICAL DESIGN ANALYSIS

All design and calculations for the electrical systems shall be performed by a licensed professional engineer with experience in family housing, and shall be stamped as such. The design shall be a separate bound assembly, in one or more volumes, of all the functional and engineering criteria, design information, and calculations applicable to the project design. The analysis shall be organized in a format appropriate for review, approval, and record purposes. The design calculations shall be presented in a clear and legible form, with all methods and references identified, and all assumptions and conclusions explained.

a. Load Calculations

(1) A separate demand load calculation shall be provided for each type of individual living-unit (per NEC Art. 220). Include catalog cuts of the electrical data for the HVAC equipment that was selected by the mechanical designer.

(2) A separate demand load calculation shall be provided for each type of multifamily dwelling. (Per NEC Art. 220)

(3) Calculate the demand load for each pad-mounted distribution transformer by adding all the demand loads (minus the HVAC load), for each type of living unit connected to the transformer, then multiply by the appropriate demand factor found in the following table. Then, the HVAC load and any site lighting loads are added to this figure to arrive at the transformer demand load. (Note that the demand factors in the table shall not be applied to the HVAC loads and the Site Lighting loads, which are included at 100% demand.

DEMAND FACTOR TABLE

Number of Quarters	Demand Factor Percent	Number of Quarters	Demand Factor Percent	Number of Quarters	Demand Factor Percent
1	80.0	19	18.6	37	13.2
2	60.0	20	17.5	38	13.0

Number of Quarters	Demand Factor Percent	Number of Quarters	Demand Factor Percent	Number of Quarters	Demand Factor Percent
3	50.0	21	17.1	39	12.8
4	45.0	22	16.6	40	12.6
5	40.0	23	16.1	41	12.4
6	35.0	24	15.8	42	12.2
7	32.0	25	15.6	43	12.0
8	29.0	26	15.4	44	11.8
9	27.0	27	15.2	45	13.6
10	25.0	28	15.0	46	11.4
11	24.0	29	14.8	47	11.2
12	23.0	30	14.6	48	11.0
13	22.0	31	14.4	49	10.8
14	21.0	32	14.2	50	10.6
15	20.0	33	14.0	51	10.4
16	19.4	34	13.8	52	10.4
17	18.7	35	13.6	53	10.1
18	18.3	36	13.4	54	10.0

(4) Calculate the demand load for each phase of each circuit of the primary distribution system. The loads shall be computed using the same method as outlined for the pad-mounted transformers in the previous paragraph. (Note that for 54 or more living-units, the demand factor shall be 10 percent).

(5) In addition to the complete load calculations required hereinbefore, provide load summary tables which group and identify each type of demand load calculated. (Individual living-units, multifamily dwellings, pad-mounted distribution transformers, and primary phases.)

b) Voltage Drop (VD) Calculations

(1) Select conductor sizes of primary feeders and calculate maximum footage for each phase of each primary circuit, using a maximum allowable VD for each circuit.

(2) Select conductor sizes of site lighting circuits and calculate the VD for each circuit. (Maximum allowable VD = 3 percent).

(3) Select service lateral conductor sizes for each multifamily swelling and calculate the maximum length (in feet) of each different type of service lateral using a maximum allowable VD of 3 percent.

(4) Select unit feeder conductor sizes for each individual living-unit and calculate the VD for the worst case branch circuit. The combined voltage drop for the service laterals, unit feeders, and branch circuit shall not exceed 5 percent.

(5) Short Circuit Calculations: Calculate the available fault current at the main breaker of the individual living-unit load center panel. A coordination study shall be provided for all fuse selections.

2.3.4 **(AM#2) Meeting Minutes and Annotated Comments**

(AM#2) Include all meeting minutes and annotated comments with the final Design Analysis.

2.3.5 **(AM#2) Deleted**

2.3.6 **(AM#2) Deleted**

2.4 **(AM#2) Submittal Register**

Update the Submittal Register submitted at the Design Development stage , listing submittals for all specification sections that require submittals. Submit four hard copies and on a CD-ROM disk the updated submittal register files and program for this design submittal.

PART 3 EXECUTION

3.1 DRAWINGS

Prepare, organize, and present drawings in the format specified herein. Provide drawings complete, accurate and explicit enough to show compliance with the Contract requirements and to permit construction. Drawings illustrating systems proposed to meet the requirements of the Contract performance specifications shall reflect proper detailing for each such system to assure appropriate use, proper fit, compatibility of components and coordination with the design analysis and specifications required by this section. Coordinate drawings to ensure there are no conflicts between design disciplines and between drawings and specifications. For specific drawing requirements, see paragraphs: DESIGN DEVELOPMENT (60 PERCENT PRELIMINARY DESIGN) REQUIREMENTS and CONSTRUCTION DOCUMENTS (100 PERCENT DESIGN) REQUIREMENTS.

3.1.1 CONSTRUCTION DRAWINGS

3.1.1.1 CADD Drawings

The Contractor shall ensure that all delivered CADD digital files and data (e.g., base files, reference files, cell/block libraries) are compatible with the Government's target CADD system and operating system and shall be furnished to the Government in uncompressed AutoCAD drawing file format (*.DWG) in the version and release currently being used by Dyess AFB (Autodesk Map 5 and AutoCAD 2000). Autodesk Map 5 format is specifically required for certain geo-referenced Dyess AFB site plan (design) drawings to support Dyess AFB's GIS system, as discussed below. DOS MSBACKUP or any other means of file compression is NOT acceptable. The term "compatible" means that data is in native digital format i.e. .dgn, and can be accessed directly by the target CADD system without translation, preprocessing, or postprocessing of the digital data files. It is the responsibility of the Contractor to ensure this level of compatibility.

3.1.1.2 CADD Standards

a. CADD drawings shall be prepared in accordance with the applicable general and discipline-specific provisions for drawing formats, level/layer assignments, line colors, line weights, and line types of the "Tri-Service A/E/C Standards" and the "SWD Architectural and Engineering Instruction Manual (AEIM), Chapter VIII, "Drafting Standards."

b. All symbology or blocks developed by either the Contractor or Government shall be interchangeable and adhere to sound architectural graphics standards as per the American Institute of Architects. This does not include such symbology or blocks developed by software vendors which would result in copyright violations.

c. All title blocks and drawing border shall be drawn full scale (1"=1") in AutoCAD Paperspace. All drawings, including details, shall be drawn full scale (1"=1") and appropriately scaled into AutoCAD Paperspace Viewports.

d. CADD drawings/lettering are required. No sticky-back or other modifications other than signatures and professional seals may be made to the plotted drawings.

e. Drawing Files shall be named according to Building/Facility No. ___ Sheet No. (I.E. 5646-01.DWG).

f. As-Built Drawings: The Contractor shall also comply with the following regarding Contractor-furnished as-built drawings to support Dyess AFB's GIS system:

g. The CADD standards for design of this project, including seed/prototype files containing the Government's preset standard settings and electronic reference files containing the Government's standard border/title block sheets, are located at the following Web site:

http://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp.

The Contractor shall submit a written request for approval of any deviations from the Government's established CADD standards. No deviations will be permitted unless prior written approval of such deviation has been received from the Government.

3.1.1.3 Dyess AFB GIS System

To support Dyess AFB's GIS system, all site plan (design) drawings (Site demolition plan, site features plan, grading plan, utility plan, communication site plan, landscaping plan, irrigation plan, electrical site plan, etc) shall be produced by modifying a single (one) GF, geo-referenced (GR), Autodesk Map 5, Dyess AFB drawing file titled "Base Map.dwg". To produce each required individual project site plan sheet, the Contractor shall insert the trimmed "Base Map.dwg" file into the project drawing viewport via X-reference. Also, the appropriate X-referenced GF utilities files and other GF plan files listed shall be X-referenced and binded to the "Base Map.dwg". For all such geo-referenced design drawings, the Contractor shall indicate on the drawing border which layers are turned on and also indicate just below the sheet title, "This is a Geo-Referenced Drawing."

a. Reduce File Size: The "Base Map.dwg" shall be trimmed to include only the project site area; and "saved as", Base Map (Organization/date).dwg. This will reduce the project drawing file size.

b. Maintain Geo-referencing: The Contractor shall maintain geo-referencing orientation, line types, layer colors, layer designations, and symbols as provided on the Government-furnished, geo-referenced drawing file.

c. New Information added by Contractor: The Government-furnished geo-referenced drawing file is layered in compliance with Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) as published by the CADD/GIS Technology Center, Vicksburg, MS. Linetypes, colors, symbology, and data tables are in compliance with this standard. Any new elements that are introduced by Designer during the design process shall also comply with these standards regarding layering, linetypes, color, symbology, and data tables.

d. Errors in Government-furnished, Geo-referenced Drawing File: The Contractor shall make corrections to the Government-furnished, geo-referenced drawing file to be used in the design drawings when discrepancies between the geo-referenced drawing file and the existing site conditions are identified during Designer's field survey to be conducted as part of the normal design effort.

e. Tiff Images: A GF, GR, "Tiles with photos loaded & scaled.dwg" file will be provided/made available to the Contractor which x-references *.tif photo images of Dyess AFB. These images can be loaded and used to digitize any desired features which are not presently shown on the "Base Map.dwg" file.

f. Contour Drawings: New drawing sheets which are intended to show changes to existing contours shall be created on a new layer in the "Base Map.dwg" file. When the project contour is created, the changed contour lines in the new layer shall appear bold-continuous and the existing contour lines shall appear dashed.

g. Design Revisions: The File Name for each new and revised project sheet shall contain in addition to the Sheet Number the company name of the originator/revisor and the date (Example: 7210 SEQ1(CSG 040102).dwg).

3.1.1.4 Size of CADD Drawings

Overall Size of CADD drawings shall be 24 inches by 36 inches, at the trim line. Full size drawings shall be submitted for all design submittals. English working units and the District's standard file-naming convention shall be used.

3.1.1.5 .CAL Files

In addition to copying the electronic CADD drawing files to the Submittals' CD-ROM disk, include the drawings in .cal format so that the drawings may be viewed on screen using MaxView Reader that is located on the Solicitation and Contract CD-ROM disks. Include a "sendable" compiled Project.svd index file, created with MaxView Author, so that the drawings may be viewed by double-clicking on this file. MaxView's web site is http://www.maxview.com. Keep the CADD files and the .cal files in separate folders.

3.1.1.6 Drawing Format

Title block shall include, as a minimum, project title and location, sheet title, **(AM#2) sheet number,** and sequence number. For each design submittal, each Contractor-prepared drawing shall bear the printed name and signature of the registered architect or appropriate registered engineer responsible for the work portrayed on that drawing and proposed to meet the

Contract requirements. For the final submittal, each Contractor-prepared drawing shall bear the stamp or seal and signature of the registered architect or appropriate registered engineer responsible for the work portrayed on that drawing and proposed to meet the Contract requirements.

3.1.1.7 Drawing Scales

Work shall be drawn at the scales listed below. All disciplines should use the same scale for plan sheets. Scale for all drawings and delineation will permit complete legibility. A graphic bar or checkerboard scale will be provided on each sheet near the lower left hand corner of th sheet. Unless specified elsewhere, conventional scale standards are as follows:

	ENGLISH)
Site Plans (Buildings)	No smaller than 1-inch = 30 feet
Floor Plans (Note 1)	1/8-inch to 1/4-inch = 1 foot
Roof Plans	1/8-inch = 1 foot
Exterior Elevations	1/8-inch = 1 foot
Interior Elevations	**(AM#2) 1/4-inch = 1 foot**
Cross Sections	**(AM#2) 1/4-inch to 1/8-inch = 1 foot**
Wall Sections (Note 3)	3/4-inch = 1 foot
Stair Details	3/4-inch = 1 foot
Details (Note 2)	1 1/2 inches or 3 inches = 1 foot
Reflected Ceiling Plans	1/8-inch = 1 foot
Interior Toilet Elevations	3/4-inch to 1/2-inch
Wall Types	1 1/2 inches or 3 inches = 1 foot

Notes:

1. Scale of composite plans shall be as required so that the entire facility is drawn on one sheet without break lines.

2. The details shall be large enough to show all fixtures, accessories, equipment, materials, manner of construction, clearances required for proper maintenance, and complete dimensions. Toilet rooms and Equipment rooms are examples of the kind of spaces which shall be drawn as a Detail Plan. All details containing sheet metal flashing shall be 3 inches = 1 foot.

3. May be 3/4-inch = 1 foot if pertinent details are shown at larger scale.

3.1.2 DRAWINGS SEQUENCE

Arrange drawings by design discipline in accordance with the SWD-AEIM, Chapter VIII, Appendix A, Plate D1, Standard Arrangement Of Drawings.

3.2 CONSTRUCTION SPECIFICATIONS

(AM#2) Except as otherwise noted, the Contractor shall use commercially available guide specifications for developing construction specifications, such as "SpecText" published by The Construction Specifications Institute (http://csi.worldweb.net/technic/master/spectextms.htm), and "MasterSpec" published by The American Institute of Architects (http://www.arcomnet.com/), or BSD SpecLink (Building Systems Design, Inc., Atlanta, GA, http://csi.worldweb.net/technic/master/bsdms.htm and http://www.bsdsoftlink.com/speclink/sl_frame.htm), or manufacturers'

product specifications utilizing CSI's Manu-Spec format. These specifications shall conform to the applicable criteria requirements indicated in the solicitation (Section 01000, Parts 1-15). Format shall be the Construction Specification Institute (CSI) 16-Division, 3-Part Section format. Sections shall be numbered in accordance with CSI MasterFormat. No two sections shall have the same section number.The specifications shall clearly identify, where appropriate, the specific products chosen to meet the requirements of the specifications (manufacturers' brand names and model numbers or similar product information). The Contractor shall be responsible for coordinating references, along with the technical requirements, to specific specification sections (number and title) within the project specifications. Section references (title and number) shall be revised to reflect the titles and numbers of specification sections used. Specific required modifications to Commercial Guide Specifications are:

a. Indicate the guide specification series (e.g. CSI SpecText, MasterSpec, SpecLink) in either the header or footer of each section.

b. Change references to the "Architect" or "Engineer" to "Contracting Officer" and "Owner" to "Government".

c. Change references to "Section 01300" or "Section 01300 SUBMITTALS" to "Section 01330 CONSTUCTION SUBMITTAL PROCEDURES."

d. (AM#2) Mandatory guides and sections listed in the Project Table of Contents are UFGS and UFSWF guide specifications. Microsoft Word versions of these guides are located on the Solicitation and Contract CD disks.

3.2.1 DIVISION 1 SPECIFICATION SECTIONS

Include Division 1 specifications sections contained in this Contract as part of the project specifications without change.

3.2.2 FORMAT FOR CONSTRUCTION SPECIFICATIONS

Submit the construction specifications, including cover page and project table of contents, printed using a word processor.Use the Corps of Engineers Specsintact with SGML, Version 3.0 or higher, software to edit the Corps of Engineers' mandatory sections. Use good quality white paper. The corrected final (100 percent) specifications with review comments incorporated shall be cleaned up (without marked-up edits) and submitted in both hard copy and on magnetic media (Microsoft Windows compatible CD-ROM disk(s)and compatible with the Microsoft Word 2000 format. Cover page, specifications, and attachments shall be prepared in a Microsoft Word (compatible with Microsoft Word 97) format. Carbon copies are not acceptable..

The Cover page shall be similar to the Contract Cover page and shall include:

a. Project title, Project Number, activity and location

b. Construction contract number

c. Construction Contractor's name and address

d. Design firm's name and address

e. Names of design team members (Designers of record) responsible for

each Contractor prepared technical discipline of the project specification

f. Name and signature of a Principal of the design firm

The Table of Contents shall list the 16 Divisions contained in CSI format and the specification section numbers and titles contained in the project specification.

The Corps of Engineers Specsintact and Wordspec software can be downloaded from the Internet at the following address:

http://kscdl2.ksc.nasa.gov/specsintact/.

The Corps of Engineers UFGS guide specifications (SI SGML format), the Lighting Fixture Standard Drawing 40-06-04 Details and Design Criteria (e.g. Army Technical Manuals (TM's), Engineering Manuals, Engineering Technical Letters, Engineer Circulars, Engineer Pamphlets, Design Guides, and Military Handbooks) can be downloaded from the Internet at the following address:

http://www.hnd.usace.army.mil, then click on Techinfo then Guide Specifications, "Engineer Publications", or "Support Documents"

The guides can only be downloaded in Winzip *.zip files. These are downloadable executable files.

Specsintact software, the UFGS guide specifications, and design criteria manuals can also be obtained from the current version of the Construction Criteria Base CD, issued by the National Institute of Building Sciences, telephone number 202/289-7800, fax number 202-289-1092, internet address is:

http://www.nibs.org.

Fort Worth District guide specifications and the District supplements to the UFGS guide specifications are located on the Internet at the following address:

(AM#2) http://www.swf.usace.army.mil/eandc/ec-a/

3.3 CONSTRUCTION SUBMITTALS

All construction submittals shall be in accordance with Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES.

Construction submittal types and products, including the submittal description numbers and data package numbers, shall be included in the specification sections, where required. When appropriate, use specific product terms instead of the generic product terms contained in the specifications sections (e.g., asphalt shingles, built-up roofing, EPDM single ply, etc. vs roof covering; concrete masonry units, brick, metal siding, etc. vs exterior skin; mineral fiber board, block, batt or blanket, polystyrene, polyurethane, polyisocyanurate board vs insulation).

3.3.1 SUBMITTAL REGISTER (FORM)

Prepare and maintain a Submittals Register in accordance with Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES. An electronic version of the ENG Form 4288 is located on the Solicitation and Contract Award CD-ROM disks in

folder "Subreg." This version is the Specsintact DOS Submittal Register program and includes a Readme.txt file. Copy the files to the computer's C:\ drive, remove the read-only attributes, and then double-click on either file "subreg.exe" or on "submit.bat." This is **not** a Windows-based program so the mouse **does not** work. Editing instructions are on-screen, such as press the "F5 (add)" and then the "E" keys to create new empty submittals, the "PgDn" key to complete editing, and the "A" key to accept. For each submittal, fill in the Section Number, Activity Number if applicable, Paragraph Number, Description, Type of Submittal (e.g. SD-01 through SD-11(See Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES)), Classification (e.g. G or FIO), and the Contractor's proposed submittal date. Fill in columns "a" through "o" on the ENG Form 4288 and submit a copy of the "Subreg" folder with the updated files and a hard copy of the register as required for the various construction submittals. Unless Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES allows a submittal to be Government approved ("G"), all submittals shall be "FIO" for Information Only (Contractor Approved) items. A blank MS Excel version of the Form 4288 Submittal Register is also included in the "Subreg" folder and may be used if allowed by the Contracting Officer.

3.4 DESIGN ANALYSES

Prepare design analyses (basis of design and calculations) for each applicable design discipline. The design analyses shall be a presentation of facts to demonstrate that the concept of the project is fully understood and that the design is based on sound engineering. The design analysis for each discipline shall include:

a. A basis of design consisting of:

(1) An introductory description of the project concept which addresses the salient points of the design;

(2) An orderly and comprehensive documentation of criteria, rationale, assumptions and reasoning for system selection.

b. Calculations required to support the design. Complete site and housing unit design calculations for utility distributions systems, structural elements and electrical and mechanical systems. Include computations for sizing equipment, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Also include final passive energy strategy performance calculations for each housing unit type. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation (e.g., TRNSYS, DOE 2.1 Blast, etc.) is required. Performance calculations shall also determine the peak cooling load of all passive solar unit types. These calculations can be used to size the unit's mechanical systems.

c. Equipment Schedule. Based on the results of calculations, provide a complete list of the materials and equipment proposed for heating and plumbing, with the manufacturer's published cataloged product installation specifications and roughing-in data. The heating equipment data shall include the manufacturer's wiring diagrams, installation specifications, ARI certification, and the standard warranty for the equipment. In addition, provide the manufacturer's published cataloged capacities for supply diffusers as evidence that the arrangement of

supply air outlets in each room will provide the throw and spread characteristics required to cover completely all exterior wall surfaces with the blanket of warm air at the proper design velocities.

d. Project Engineering Considerations and Instructions (ECI) for Final Design Analysis.

The Contractor shall not make reference to the RFP solicitation to avoid stating the requirements for the basis for design.

3.4.1 ENGINEERING CONSIDERATIONS AND INSTRUCTIONS (ECI) FOR FIELD PERSONNEL

3.4.1.1 Separate Appendix

Under a separate appendix in the Final Design Analysis, the Design-Build Contractor shall include the following items:

a. Features critical to the quality of the final construction product requiring special attention.

b. Submittals requiring special attention during construction.

c. Special user requirements or instructions.

d. Assumed field conditions, pertinent significant aspects, or critical phases of the project used as a basis of project design.

3.4.1.2 Format

Format for ECI's shall include the following information:

"ENGINEERING CONSIDERATIONS AND INSTRUCTIONS

Project Name:_____

Location: _____

Designer Name:_____ Phone:_____

Discipline:_____

Design-Build designers have prepared the following engineering considerations and instructions (ECI). These ECI's should be followed during the construction of the above project. If you have any questions, contact the appropriate Design-Build designer."

3.4.1.3 Distribution of ECI's

In addition to including ECI's in a separate appendix of the final design analysis and after acceptance of the 100 percent corrected design and prior to the start of construction, the design-build Contractor shall e-mail a copy of the ECI's to the appropriate U.S. Army Corps of Engineer's Field representative for his consideration with a copy also sent to the appropriate individual in following office(s): CENWO-CD-QR and CENWO-PM-M.
The Government will provide the names and e-mail addresses to the design-build Contractor at either the pre-design or pre-construction conference.

3.4.2 REQUESTS FOR INFORMATION, MEETING MINUTES AND COMMENTS

Copies of Requests for Information (RFI) made by the Contractor to the Government shall be included as an appendix to the design analysis. An index of each RFI, which documents the RFI number, the date RFI given to Government, the date the RFI is answered and the Action Response provided by the Government.

A copy of all meeting minutes and design review comments (if any) with action responses shall be included as an appendix to the design analysis.

Appendices for RFI's and Meeting Minutes and design review comments shall have page numbering that follows the same format as for Calculations listed above.

3.5 DESIGN CERTIFICATION

The Contractor shall provide certification signed by an officer of the Contractor's company attesting that the drawings, specifications and design analyses prepared for the construction of the facility meet the requirements of the Contract. The certification shall accompany the submission of the design documents along with names and disciplines for the designers of record. This design certification shall include a list of deviations (variations) from the solicitation or accepted final design. Prepare the design certification and transmittal letter in the format shown on Attachment A included at the end of this section.

3.6 COMMON DESIGN DEFICIENCIES

The work involved in making corrections due to common deficiencies becomes lost effort and time for both the designer and the reviewer. Carefully compare the design and contract documents with all requirements at several points in the design process to avoid unnecessary changes at a later date. Some of the requirements which are most often overlooked include:

a. Requirements of the COE 2, Southwestern Division's ARCHITECTURAL AND ENGINEERING INSTRUCTIONS MANUAL (SWD-AEIM) have been repeatedly overlooked in the past.

b. Failure to incorporate the Fort Worth District's supplemental local requirements to the Corps of Engineers' UFGS guide specifications.

c. Not using correct abbreviations or terminology on the drawings. Abbreviations must match what is used on the standard abbreviation sheet and terminology must match what is used in the standard technical guide specifications.

d. Not using the correct scales, north arrow designation, section cut system, or incomplete dimensioning on the drawings.

e. Not providing sufficient space for door operation hardware at doors which swing into a wall running perpendicular to the opening. 4 inches minimum is required between edge of door frame and perpendicular walls.

f. Not providing correct and complete Design Analysis information written in the present tense. The Design Analysis will be written following the format indicated herein. A separate Fire Protection section in the Design Analysis with input from all disciplines is one area which is often overlooked and shall be included.

g. Not correctly presenting or coordinating (to avoid interference)

features of Fire Protection, Noise Control, and Physical Security.

h. Not correctly referencing and cross referencing building sections, wall sections, details, etc.

i. Failure to read and use technical notes in editing the Guide Specifications.

j. Failure to coordinate all disciplines prior to submittal of projects for review.

k. Improper use of fire-retardant wood. Fire-retardant wood is combustible; its use in buildings that are of noncombustible construction is extremely limited (see ICBO Bldg Code for the minor allowable uses). Because of the potential for severe degradation, fire retardant plywood shall not be used in a roof or roofing system, or in structural applications.

l. Not listing the ANSI/BHMA numbers in addition to trade names in door hardware specifications and failure to correctly specify hardware finishes.

m. Control joints in CMU walls and brick expansion joints in face brick are not shown on both architectural plans, elevations and structural plans, or are inconsistent. Note also control joint locating and coordination for floor tile per Tile Council of America recommendations.

n. Failure to delete all publications which do not apply to the particular project.

o. North is not oriented the same direction on all sheets (civil, site, arch).

Attachment A

[Contractor's Letterhead]

[Date: _____]
[Contract No. _____]

[Reviewing Component Address]

Subj: DESIGN CERTIFICATION AND TRANSMITTAL FOR
[Project Title _____]
[Project Location _____]
[Contract No. _____]

Gentlemen

Enclosed are the following documents, which I hereby certify are in compliance with the RFP requirements of the subject construction contract and can be used to commence construction subject to Government approval:

1. Design Drawings

2. Project Specification

3. Design Analysis

a. Civil
b. Water Supply and Wastewater Collection
c. Architectural
d. Interior Design
e. Structural
f. Mechanical
g. Fire Protection
h. Electrical
i. Environmental Protection, Compliance and Permits
j. Health and Safety
k. Sustainable Design

4. Submittals Register

[Typed Name and Signature of an Officer of the Contractor's Company]

5. All other Design Submittals

6. Deviations

Copy to:
[As standard with the Contractor]

-- End of Section --

SECTION 02770A

CONCRETE SIDEWALKS AND CURBS AND GUTTERS
03/98

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(1991) Burlap Cloth Made from Jute or Kenaf

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 185	(1997) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
ASTM A 615/A 615M	(1996a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 616/A 616M	(1996a) Rail-Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 617/A 617M	(1996a) Axle-Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM C 31/C 31M	(1996) Making and Curing Concrete Test Specimens in the Field
ASTM C 143	(1990a) Slump of Hydraulic Cement Concrete
ASTM C 171	(1997) Sheet Materials for Curing Concrete
ASTM C 172	(1997) Sampling Freshly Mixed Concrete
ASTM C 173	(1996) Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	(1997) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 309	(1997) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 920	(1995) Elastomeric Joint Sealants
ASTM D 1751	(1983; R 1991) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

ASTM D 1752	(1984; R 1996) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 3405	(1996) Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements

1.2 MEASUREMENT FOR PAYMENT

1.2.1 Sidewalks

The quantities of sidewalks to be paid for will be the number of square yards of each depth of sidewalk constructed as indicated.

1.2.2 Curbs and Gutters

The quantities of curbs and gutters to be paid for will be the number of linear feet of each cross section constructed as indicated, measured along the face of the curb at the gutter line.

1.3 BASIS FOR PAYMENT

1.3.1 Sidewalks

Payment of the quantities of sidewalks measured as specified will be at the contract unit price per square yard of the thickness specified.

1.3.2 Curbs and Gutters

Payment of the quantities of curbs and gutters measured as specified will be at the contract unit price per linear foot of each cross section.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Concrete; [_____], [_____]

Copies of certified delivery tickets for all concrete used in the construction.

SD-06 Test Reports

Field Quality Control; [_____], [_____]

Copies of all test reports within 24 hours of completion of the test.

1.5 WEATHER LIMITATIONS

1.5.1 Placing During Cold Weather

Concrete placement shall not take place when the air temperature reaches 40 degrees F and is falling, or is already below that point. Placement may begin when the air temperature reaches 35 degrees F and is rising, or is already above 40 degrees F. Provisions shall be made to protect the concrete from freezing during the specified curing period. If necessary to place concrete when the temperature of the air, aggregates, or water is below 35 degrees F, placement and protection shall be approved in writing. Approval will be contingent upon full conformance with the following provisions. The underlying material shall be prepared and protected so that it is entirely free of frost when the concrete is deposited. [Mixing water and aggregates] [Mixing water] [Aggregates] shall be heated as necessary to result in the temperature of the in-place concrete being between 50 and 85 degrees F. Methods and equipment for heating shall be approved. The aggregates shall be free of ice, snow, and frozen lumps before entering the mixer. Covering and other means shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing, and at a temperature above freezing for the remainder of the curing period.

1.5.2 Placing During Warm Weather

The temperature of the concrete as placed shall not exceed 85 degrees F except where an approved retarder is used. The mixing water and/or aggregates shall be cooled, if necessary, to maintain a satisfactory placing temperature. The placing temperature shall not exceed 95 degrees F at any time.

1.6 PLANT, EQUIPMENT, MACHINES, AND TOOLS

1.6.1 General Requirements

Plant, equipment, machines, and tools used in the work shall be subject to approval and shall be maintained in a satisfactory working condition at all times. The equipment shall have the capability of producing the required product, meeting grade controls, thickness control and smoothness requirements as specified. Use of the equipment shall be discontinued if it produces unsatisfactory results. The Contracting Officer shall have access at all times to the plant and equipment to ensure proper operation and compliance with specifications.

1.6.2 Slip Form Equipment

Slip form paver or curb forming machine, will be approved based on trial use on the job and shall be self-propelled, automatically controlled, crawler mounted, and capable of spreading, consolidating, and shaping the plastic concrete to the desired cross section in 1 pass.

PART 2 PRODUCTS

2.1 CONCRETE

Concrete shall conform to the applicable requirements of [Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE] [Section 02753 CONCRETE PAVEMENT FOR AIRFIELDS AND OTHER HEAVY-DUTY PAVEMENTS] [Section 02754 CONCRETE PAVEMENTS FOR SMALL PROJECT] except as otherwise specified. Concrete shall have a minimum compressive strength of 3500 psi at 28 days. Maximum size of aggregate shall be 1-1/2 inches.

2.1.1 Air Content

Mixtures shall have air content by volume of concrete of 5 to 7 percent, based on measurements made immediately after discharge from the mixer.

2.1.2 Slump

The concrete slump shall be 2 inches plus or minus 1 inch where determined in accordance with ASTM C 143.

2.1.3 Reinforcement Steel

Reinforcement bars shall conform to ASTM A 615/A 615M, ASTM A 616/A 616M, or ASTM A 617/A 617M. Wire mesh reinforcement shall conform to ASTM A 185.

2.2 CONCRETE CURING MATERIALS

2.2.1 Impervious Sheet Materials

Impervious sheet materials shall conform to ASTM C 171, type optional, except that polyethylene film, if used, shall be white opaque.

2.2.2 Burlap

Burlap shall conform to AASHTO M 182.

2.2.3 White Pigmented Membrane-Forming Curing Compound

White pigmented membrane-forming curing compound shall conform to ASTM C 309, Type 2.

2.3 CONCRETE PROTECTION MATERIALS

Concrete protection materials shall be a linseed oil mixture of equal parts, by volume, of linseed oil and either mineral spirits, naphtha, or turpentine. At the option of the contractor, commercially prepared linseed oil mixtures, formulated specifically for application to concrete to provide protection against the action of deicing chemicals may be used, except that emulsified mixtures are not acceptable.

2.4 JOINT FILLER STRIPS

2.4.1 Contraction Joint Filler for Curb and Gutter

Contraction joint filler for curb and gutter shall consist of hard-pressed fiberboard.

2.4.2 Expansion Joint Filler, Premolded

Expansion joint filler, premolded, shall conform to ASTM D 1751 or ASTM D 1752, 3/8 inch thick, unless otherwise indicated.

2.5 JOINT SEALANTS

2.5.1 Joint Sealant, Cold-Applied

Joint sealant, cold-applied shall conform to ASTM C 920.

2.5.2 Joint Sealant, Hot-Poured

Joint sealant, hot-poured shall conform to ASTM D 3405.

2.6 FORM WORK

Form work shall be designed and constructed to ensure that the finished concrete will conform accurately to the indicated dimensions, lines, and elevations, and within the tolerances specified. Forms shall be of wood or steel, straight, of sufficient strength to resist springing during depositing and consolidating concrete. Wood forms shall be surfaced plank, 2 inches nominal thickness, straight and free from warp, twist, loose knots, splits or other defects. Wood forms shall have a nominal length of 10 feet. Radius bends may be formed with 3/4 inch boards, laminated to the required thickness. Steel forms shall be channel-formed sections with a flat top surface and with welded braces at each end and at not less than two intermediate points. Ends of steel forms shall be interlocking and self-aligning. Steel forms shall include flexible forms for radius forming, corner forms, form spreaders, and fillers. Steel forms shall have a nominal length of 10 feet with a minimum of 3 welded stake pockets per form. Stake pins shall be solid steel rods with chamfered heads and pointed tips designed for use with steel forms.

2.6.1 Sidewalk Forms

Sidewalk forms shall be of a height equal to the full depth of the finished sidewalk.

2.6.2 Curb and Gutter Forms

Curb and gutter outside forms shall have a height equal to the full depth of the curb or gutter. The inside form of curb shall have batter as indicated and shall be securely fastened to and supported by the outside form. Rigid forms shall be provided for curb returns, except that benders or thin plank forms may be used for curb or curb returns with a radius of 10 feet or more, where grade changes occur in the return, or where the central angle is such that a rigid form with a central angle of 90 degrees cannot be used. Back forms for curb returns may be made of 1-1/2 inch benders, for the full height of the curb, cleated together. In lieu of inside forms for curbs, a curb "mule" may be used for forming and finishing this surface, provided the results are approved.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

The subgrade shall be constructed to the specified grade and cross section prior to concrete placement. Subgrade shall be placed and compacted [as directed] [in conformance with Section [_____]].

3.1.1 Sidewalk Subgrade

The subgrade shall be tested for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.

3.1.2 Curb and Gutter Subgrade

The subgrade shall be tested for grade and cross section by means of a template extending the full width of the curb and gutter. The subgrade shall be of materials equal in bearing quality to the subgrade under the adjacent pavement.

3.1.3 Maintenance of Subgrade

The subgrade shall be maintained in a smooth, compacted condition in conformity with the required section and established grade until the concrete is placed. The subgrade shall be in a moist condition when concrete is placed. The subgrade shall be prepared and protected to produce a subgrade free from frost when the concrete is deposited.

3.2 FORM SETTING

Forms shall be set to the indicated alignment, grade and dimensions. Forms shall be held rigidly in place by a minimum of 3 stakes per form placed at intervals not to exceed 4 feet. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Clamps, spreaders, and braces shall be used where required to ensure rigidity in the forms. Forms shall be removed without injuring the concrete. Bars or heavy tools shall not be used against the concrete in removing the forms. Any concrete found defective after form removal shall be promptly and satisfactorily repaired. Forms shall be cleaned and coated with form oil each time before concrete is placed. Wood forms may, instead, be thoroughly wetted with water before concrete is placed, except that with probable freezing temperatures, oiling is mandatory.

3.2.1 Sidewalks

Forms for sidewalks shall be set with the upper edge true to line and grade with an allowable tolerance of 1/8 inch in any 10 foot long section. After forms are set, grade and alignment shall be checked with a 10 foot straightedge. Forms shall have a transverse slope [as indicated] [of 1/4 inch per foot] with the low side adjacent to the roadway. Side forms shall not be removed for 12 hours after finishing has been completed.

3.2.2 Curbs and Gutters

The forms of the front of the curb shall be removed not less than 2 hours nor more than 6 hours after the concrete has been placed. Forms back of curb shall remain in place until the face and top of the curb have been finished, as specified for concrete finishing. Gutter forms shall not be removed while the concrete is sufficiently plastic to slump in any direction.

3.3 SIDEWALK CONCRETE PLACEMENT AND FINISHING

3.3.1 Formed Sidewalks

Concrete shall be placed in the forms in one layer. When consolidated and finished, the sidewalks shall be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted. The concrete shall be consolidated with an approved vibrator, and the surface shall be finished to grade with a strike off.

3.3.2 Concrete Finishing

After straightedging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished with a wood float or darby to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be

produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic, followed by edging.

3.3.3 Edge and Joint Finishing

All slab edges, including those at formed joints, shall be finished with an edger having a radius of 1/8 inch. Transverse joint shall be edged before brooming, and the brooming shall eliminate the flat surface left by the surface face of the edger. Corners and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.

3.3.4 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 5/16 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.4 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

3.4.1 Formed Curb and Gutter

Concrete shall be placed to the section required in a single lift. Consolidation shall be achieved by using approved mechanical vibrators. Curve shaped gutters shall be finished with a standard curb "mule".

3.4.2 Curb and Gutter Finishing

Approved slipformed curb and gutter machines may be used in lieu of hand placement.

3.4.3 Concrete Finishing

Exposed surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with a fine-hair brush with longitudinal strokes. The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2 inch. Immediately after removing the front curb form, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The front curb surface, while still wet, shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float.

3.4.4 Joint Finishing

Curb edges at formed joints shall be finished as indicated.

3.4.5 Surface and Thickness Tolerances

Finished surfaces shall not vary more than 1/4 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.5 SIDEWALK JOINTS

Sidewalk joints shall be constructed to divide the surface into rectangular areas. Transverse contraction joints shall be spaced at a distance equal

to the sidewalk width or 5 feet on centers, whichever is less, and shall be continuous across the slab. Longitudinal contraction joints shall be constructed along the centerline of all sidewalks 10 feet or more in width. Transverse expansion joints shall be installed at sidewalk returns and opposite expansion joints in adjoining curbs. Where the sidewalk is not in contact with the curb, transverse expansion joints shall be installed as indicated. Expansion joints shall be formed about structures and features which project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated.

3.5.1 Sidewalk Contraction Joints

The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least one-fourth of the sidewalk slab thickness, using a jointer to cut the groove, or by sawing a groove in the hardened concrete with a power-driven saw, unless otherwise approved. Sawed joints shall be constructed by sawing a groove in the concrete with a 1/8 inch blade to the depth indicated. An ample supply of saw blades shall be available on the job before concrete placement is started, and at least one standby sawing unit in good working order shall be available at the jobsite at all times during the sawing operations.

3.5.2 Sidewalk Expansion Joints

Expansion joints shall be formed with [3/8] [1/2] [_____] inch joint filler strips. Joint filler shall be placed with top edge 1/4 inch below the surface and shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Immediately after finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/8 inch, and concrete over the joint filler shall be removed. At the end of the curing period, expansion joints shall be cleaned and filled with joint sealant. [Joints shall be sealed as specified in Section 02760 FIELD MOLDED SEALANTS FOR SEALING JOINTS IN RIGID PAVEMENTS.] [The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.]

3.5.3 Reinforcement Steel Placement

Reinforcement steel shall be accurately and securely fastened in place with suitable supports and ties before the concrete is placed.

3.6 CURB AND GUTTER JOINTS

Curb and gutter joints shall be constructed at right angles to the line of curb and gutter.

3.6.1 Contraction Joints

Contraction joints shall be constructed directly opposite contraction joints in abutting portland cement concrete pavements and spaced so that monolithic sections between curb returns will not be less than 5 feet nor greater than 15 feet in length. Contraction joints shall be constructed by means of 1/8 inch thick separators and of a section conforming to the

cross section of the curb and gutter. Separators shall be removed as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint and prior to finishing.

3.6.2 Expansion Joints

Expansion joints shall be formed by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb and gutter directly opposite expansion joints of abutting portland cement concrete pavement, and shall be of the same type and thickness as joints in the pavement. Where curb and gutter do not abut portland cement concrete pavement, expansion joints at least [3/8] [1/2] [_____] inch in width shall be provided at intervals not exceeding [_____] feet. Expansion joints shall be provided in nonreinforced concrete gutter at locations indicated. Expansion joints shall be sealed immediately following curing of the concrete or as soon thereafter as weather conditions permit. [Joints shall be sealed as specified in Section 02760 FIELD MOLDED SEALANTS FOR SEALING JOINTS IN RIGID PAVEMENTS.] [Expansion joints and the top 1 inch depth of curb and gutter contraction-joints shall be sealed with joint sealant. The joint opening shall be thoroughly cleaned before the sealing material is placed. Sealing material shall not be spilled on exposed surfaces of the concrete. Concrete at the joint shall be surface dry and atmospheric and concrete temperatures shall be above 50 degrees F at the time of application of joint sealing material. Excess material on exposed surfaces of the concrete shall be removed immediately and concrete surfaces cleaned.]

3.7 CURING AND PROTECTION

3.7.1 General Requirements

Concrete shall be protected against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Unhardened concrete shall be protected from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready for use before actual concrete placement begins. Protection shall be provided as necessary to prevent cracking of the pavement due to temperature changes during the curing period.

3.7.1.1 Mat Method

The entire exposed surface shall be covered with 2 or more layers of burlap. Mats shall overlap each other at least 6 inches.The mat shall be thoroughly wetted with water prior to placing on concrete surface and shall be kept continuously in a saturated condition and in intimate contact with concrete for not less than 7 days.

3.7.1.2 Impervious Sheeting Method

The entire exposed surface shall be wetted with a fine spray of water and then covered with impervious sheeting material. Sheets shall be laid directly on the concrete surface with the light-colored side up and overlapped 12 inches when a continuous sheet is not used. The curing medium shall not be less than 18-inches wider than the concrete surface to be cured, and shall be securely weighted down by heavy wood planks, or a bank of moist earth placed along edges and laps in the sheets. Sheets shall be satisfactorily repaired or replaced if torn or otherwise damaged during curing. The curing medium shall remain on the concrete surface to be cured for not less than 7 days.

3.7.1.3 Membrane Curing Method

A uniform coating of white-pigmented membrane-curing compound shall be applied to the entire exposed surface of the concrete as soon after finishing as the free water has disappeared from the finished surface. Formed surfaces shall be coated immediately after the forms are removed and in no case longer than 1 hour after the removal of forms. Concrete shall not be allowed to dry before the application of the membrane. If any drying has occurred, the surface of the concrete shall be moistened with a fine spray of water and the curing compound applied as soon as the free water disappears. Curing compound shall be applied in two coats by hand-operated pressure sprayers at a coverage of approximately 200 square feet per gallon for the total of both coats. The second coat shall be applied in a direction approximately at right angles to the direction of application of the first coat. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel and shall be free from pinholes or other imperfections. If pinholes, abrasion, or other discontinuities exist, an additional coat shall be applied to the affected areas within 30 minutes. Concrete surfaces that are subjected to heavy rainfall within 3 hours after the curing compound has been applied shall be resprayed by the method and at the coverage specified above. Areas where the curing compound is damaged by subsequent construction operations within the curing period shall be resprayed. Necessary precautions shall be taken to insure that the concrete is properly cured at sawed joints, and that no curing compound enters the joints. The top of the joint opening and the joint groove at exposed edges shall be tightly sealed before the concrete in the region of the joint is resprayed with curing compound. The method used for sealing the joint groove shall prevent loss of moisture from the joint during the entire specified curing period. Approved standby facilities for curing concrete pavement shall be provided at a location accessible to the jobsite for use in the event of mechanical failure of the spraying equipment or other conditions that might prevent correct application of the membrane-curing compound at the proper time. Concrete surfaces to which membrane-curing compounds have been applied shall be adequately protected during the entire curing period from pedestrian and vehicular traffic, except as required for joint-sawing operations and surface tests, and from any other possible damage to the continuity of the membrane.

3.7.2 Backfilling

After curing, debris shall be removed and the area adjoining the concrete shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.

3.7.3 Protection

Completed concrete shall be protected from damage until accepted. The Contractor shall repair damaged concrete and clean concrete discolored during construction. Concrete that is damaged shall be removed and reconstructed for the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable. Removed damaged portions shall be disposed of as directed.

3.7.4 Protective Coating

Protective coating of linseed oil mixture shall be applied to the exposed-to-view concrete surface.

3.7.4.1 Application

Curing and backfilling operation shall be completed prior to applying two coats of protective coating. Concrete shall be surface dry and clean before each application. Coverage shall be by spray application at not more than 50 square yards per gallon for first application and not more than 70 square yards per gallon for second application, except that the number of applications and coverage for each application for commercially prepared mixture shall be in accordance with the manufacturer's instructions. Coated surfaces shall be protected from vehicular and pedestrian traffic until dry.

3.7.4.2 Precautions

Protective coating shall not be heated by direct application of flame or electrical heaters and shall be protected from exposure to open flame, sparks, and fire adjacent to open containers or applicators. Material shall not be applied at ambient or material temperatures lower than 50 degrees F.

3.8 FIELD QUALITY CONTROL

3.8.1 General Requirements

The Contractor shall perform the inspection and tests described and meet the specified requirements for inspection details and frequency of testing. Based upon the results of these inspections and tests, the Contractor shall take the action and submit reports as required below, and any additional tests to insure that the requirements of these specifications are met.

3.8.2 Concrete Testing

3.8.2.1 Strength Testing

The Contractor shall provide molded concrete specimens for strength tests. Samples of concrete placed each day shall be taken not less than once a day nor less than once for every 250 cubic yards of concrete. The samples for strength tests shall be taken in accordance with ASTM C 172. Cylinders for acceptance shall be molded in conformance with ASTM C 31/C 31M by an approved testing laboratory. Each strength test result shall be the average of 2 test cylinders from the same concrete sample tested at 28 days, unless otherwise specified or approved. Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi.

3.8.2.2 Air Content

Air content shall be determined in accordance with ASTM C 173 or ASTM C 231. ASTM C 231 shall be used with concretes and mortars made with relatively dense natural aggregates. Two tests for air content shall be made on randomly selected batches of each class of concrete placed during each shift. Additional tests shall be made when excessive variation in concrete workability is reported by the placing foreman or the Government inspector. If results are out of tolerance, the placing foreman shall be notified and he shall take appropriate action to have the air content corrected at the

plant. Additional tests for air content will be performed on each truckload of material until such time as the air content is within the tolerance specified.

3.8.2.3 Slump Test

Two slump tests shall be made on randomly selected batches of each class of concrete for every 250 cubic yards, or fraction thereof, of concrete placed during each shift. Additional tests shall be performed when excessive variation in the workability of the concrete is noted or when excessive crumbling or slumping is noted along the edges of slip-formed concrete.

3.8.3 Thickness Evaluation

The anticipated thickness of the concrete shall be determined prior to placement by passing a template through the formed section or by measuring the depth of opening of the extrusion template of the curb forming machine. If a slip form paver is used for sidewalk placement, the subgrade shall be true to grade prior to concrete placement and the thickness will be determined by measuring each edge of the completed slab.

3.8.4 Surface Evaluation

The finished surface of each category of the completed work shall be uniform in color and free of blemishes and form or tool marks.

3.9 SURFACE DEFICIENCIES AND CORRECTIONS

3.9.1 Thickness Deficiency

When measurements indicate that the completed concrete section is deficient in thickness by more than 1/4 inch the deficient section will be removed, between regularly scheduled joints, and replaced.

3.9.2 High Areas

In areas not meeting surface smoothness and plan grade requirements, high areas shall be reduced either by rubbing the freshly finished concrete with carborundum brick and water when the concrete is less than 36 hours old or by grinding the hardened concrete with an approved surface grinding machine after the concrete is 36 hours old or more. The area corrected by grinding the surface of the hardened concrete shall not exceed 5 percent of the area of any integral slab, and the depth of grinding shall not exceed 1/4 inch. Pavement areas requiring grade or surface smoothness corrections in excess of the limits specified above shall be removed and replaced.

3.9.3 Appearance

Exposed surfaces of the finished work will be inspected by the Government and any deficiencies in appearance will be identified. Areas which exhibit excessive cracking, discoloration, form marks, or tool marks or which are otherwise inconsistent with the overall appearances of the work shall be removed and replaced.

-- End of Section --

SECTION 13284

REMOVAL, RECYCLING AND DISPOSAL OF REGULATED MATERIALS
AMENDMENT NO. 0003

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 82	Protection of Stratospheric Ozone
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 273	Standards for Universal Waste Management
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions
49 CFR 171	General Information, Regulations and Definitions
49 CFR 178	Specifications for Packagings

TEXAS ADMINISTRATIVE CODE (TAC)

TAC 335.91 - 335.94	Standards Applicable to Transporters of Hazardous Waste

U.S. ARMY CORPS OF ENGINEERS (COE)

COE EM 385-1-1 (Current Edition) Safety and Health Requirements Manual

1.2 DEFINITIONS

1.2.1 Regulated Materials

Regulated materials are creosote, mercury (Hg), ozone depleting chemicals (ODC), and polychlorinated biphenyls (PCB).

1.2.2 Ballast

A ballast is a device used to give starting voltage and/or stabilizing current to a fluorescent light tube. Ballast is a metal case filled with a solid or semisolid asphalt/tar substance that contain a capacitor. The capacitor may contain the following regulated materials: PCB, TCB or DEPH.

PCB was prohibited 1979 per 40 CFR 761. Approximately half of the ballasts made before 1979 contained PCB. "No PCBs" labels have been used to identify ballasts without PCB since 1 July 1978. Therefore all ballasts without "No PCBs" labels, with labels of fabrication on or before 1979 and no known date of fabrication are assumed as PCB ballasts. PCB-ballasts are regulated and disposal at a landfill is prohibited.

Ballasts from 4-foot lighting fixtures made before 1985 and from all other sizes of fixtures made before 1991 contained wet capacitors. The replacement dielectric fluid for PCBs in these wet capacitors is mineral oil and solvents. The hazardous solvents are typically TCB or DEPH. Unless the non-PCB ballasts are made after 1992, they are presumed to contain TCB or DEPH and shall be recycled at a permitted facility.

1.2.3 Creosote

A brownish oily liquid, consisting chiefly of aromatic hydrocarbons. It is obtained by distillation of coal tar and used especially as a wood preservative (i.e. wood utility poles).

1.2.4 Fluorescent Light Tube

A light bulb (or tube) of a fluorescent lighting fixture.

1.2.5 Lighting Fixture

A unit containing a fluorescent light tube, light reflector, casing and ballast.

1.2.6 Mercury (Hg)

Mercury is a metal that is liquid at room temperature with a small vapor pressure. Mercury-containing items addressed in this specification are thermostats, fluorescent light tubes, and rechargeable battery.

1.2.7 Mercury Bulb Thermostat

A temperature control device containing a mercury ampule attached to a bimetallic sensing element.

1.2.8 Ozone Depleting Chemicals (ODC)

ODC include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halon, tetra (and tri) chloroethane, carbon tetrachloride and all isomers of methyl chloroform. A complete list of ODC are in40 CFR 82 Subpart A, Appendixes A and B. Items potentially containing ODC's are refrigeration equipment for HVAC systems, freezers, refrigerators, drinking fountains, ice machines, beverage and refrigerated food dispensers, halon fire extinguishers, and biomedical equipment.

1.2.9 Polychlorinated Biphenyls (PCBs)

The Base has determined there are no PCBs within the pole-mounted transformers in the Family Housing Area. Contractor can disregard statements in the hazardous materials report referencing PCBs in transformers.

1.2.10 Retorting Mercury

The retorting of mercury is a process whereby mercury is distilled from other materials by using heat. During the fluorescent light tube recycling process, mercury is retorting from phosphor powder that coats the inside of the glass tube.

1.2.11 Utility Pole

It is typically used for mounting power cable, panel, lighting, control switch, or electrical device such as transformers. An exterior wood pole is typically preserved by pressure treatment with application of arsenic trioxide or creosote.

1.3 DESCRIPTION OF WORK

Prior to the start of demolition work, all items containing regulated materials shall be removed from the buildings. They shall be salvaged and recycled to the maximum extent possible or incinerated. Final disposal of regulated materials in a landfill shall be in accordance with applicable Federal, state, and local regulatory agencies, and when all means of recycling and reuse are exhausted.

1.4 CONTRACTOR'S QUALIFICATIONS

The Contractor and subcontractors shall have at least 2 years experience with battery, thermostats, delisted pesticides and be familiar with Universal Waste Rules in accordance with 40 CFR 273 and Mercury-Containing and Rechargeable Battery Recycling Act, Public Law 104-142, effective since May 13, 1996. The Contractor and subcontractors shall have at least 2 years experience with PCB-containing items and familiar with 40 CFR 761. The Contractor and subcontractors shall have at least at least 2 years experience in purging and reclaiming ODC and certified in accordance with 40 CFR 82. They shall also be familiar with other applicable Federal, state and local regulations for work to be performed in this specification.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor's Qualifications; G.

Documentation of work experience in removal, recycling and/or disposal of items containing regulated material in accordance with paragraph, Contractor's Qualification.

ODC Recovery and Recycling Equipment's Certifications; G, RE.

A copy of each ODC recovery and recycling equipment's certification in accordance with 40 CFR 82.158. A written agreement of the fluorescent light tubes recycling facility to transport the packaged fluorecent light tubes.

A copy of certification from each technician reclaiming ODC in accordance with 40 CFR 82.161 and 40 CFR 82.164.

Licenses and Permits; G.

A copy of the recycling/destruction facility license for handling, treatment and/or destruction of ballasts containing PCB, TCB and/or DEPH.

A copy of the RCRA Part B permit for the facility that is retorting mercury on site.

Proof of state registration or a copy of permit for pumping, hauling and transporting hazardous waste in accordance with TAC 335.91 - 335.94, and EPA permit per 40 CFR 263 if transporting to other state.

Notification of Recycling Activity;.

Contractor shall require to notify TNRCC 90 days prior to recycling activity with the form TNRCC-0525, "Generator Notification Form for Recycling Hazardous or Industrial Waste".

Plans; G, RE.

A written Spill Prevention Plan shall be prepared in accordance with paragraph, SPILLS AND SAFETY of this section shall be submitted at least 30 days before start of work.

Environmental Pollution Insurance

A copy of the current environmental pollution liability insurance policy from the Contractor (subcontractors) and the recycling and/or destruction facilities.

SD-11 Closeout Submittals

Closure Report; G.

A report in accordance with paragraph, CLOSURE REPORT shall be prepared and submitted in 10 working days or prior to final payment after completion of work specified in this section.

Recycling Activity Delivery Receipt.

The Contractor shall submit to the Contracting Officer a delivery receipt verifying recycling of these items to the Contracting Officer. Contractor shall be responsible to manifest in accordance with 40 CFR 261 and 761. Transportation shall be in accordance with 49 CFR 173 and 178.

1.6 WASTE MINIMIZATION, SALVAGE AND RECLAMATION

The Contractor shall segregate wastes to salvage and reclaim all items to their maximum extent and practice waste minimization. The Contractor shall not dispose of any item in its entirety to the landfill or by incineration. Regulated materials shall be manifested in accordance with 40 CFR 262, unless exemption is justified.

1.7 VERIFICATION OF REGULATED MATERIALS

Prior to initiation of work in this section, the Contractor shall field verify the actual locations, quantities and categories of items containing regulated materials. The Contractor shall notify the Contracting Officer of any discrepancies or conflicts before performing work.

1.8 REMOVAL, HANDLING AND PACKAGING

Removing, handling, and packaging shall be in accordance with COE EM 385-1-1.

1.8.1 Ballasts

The Contractor shall remove all ballasts from the lighting fixtures and place them into containers for shipping in accordance with 49 CFR 178. Leaking ballasts shall be placed in containers with absorbent material such as vermiculite or other suitable fire-retardant materials. Containers shall have affixed labels "Leaking PCB or Non-PCB with TCB or DEPH Ballasts" (NOTE: delete the inapplicable items). Intact ballasts shall be packed and labeled as "PCB or Non-PCB with TCB or DEPH Ballasts" (NOTE: delete the inapplicable items). A typical container shall not hold more than 220 ballasts or the total weight of each container shall not exceed 400 kilograms (or 882 pounds). PCB ballast shall be managed in accordance with 40 CFR 761. These containers shall be transported to a permitted facility for incineration or destruction.

1.8.2 Fluorescent Light Tubes and Lighting Fixtures

The Contractor shall remove the intact fluorescent light tubes from the lighting fixtures and place in the same boxes that held the replacement light tubes or other similar size containers that have box spacers to prevent breakage. Broken tubes shall be placed in containers in accordance with 49 CFR 178 and labeled as "Broken Fluorescent Light Tubes with Mercury". The containers with broken light tubes shall be manifested for transport and disposal in accordance with 40 CFR 262, 40 CFR 263, and 40 CFR 264. Fluorescent light tubes shall be transported by the recycling facility. The Contractor shall obtain written agreement from the recycling facility to transport the packaged light tubes. Metallic components of the lighting fixtures shall be recycled as scrap metal with other metallic components of the building structure. Plastic components of the lighting fixtures shall be segregated and recycled.

1.8.3 Mercury Bulb Thermostats

The Contractor shall remove and handle mercury bulb thermostats in accordance with 40 CFR 273. Leaking or broken ones shall be placed in a container with absorbent such as vermiculite and labeled as " Broken Mercury Bulb Thermostats". Intact bulb thermostats shall be packed and labeled as "Intact Mercury Bulb Thermostats." They shall be manifested for transportation and disposal in accordance with 40 CFR 262, 40 CFR 263, and 40 CFR 264.

1.8.4 ODC Units

The Contractor shall purge the units and handle ODC in accordance with 40 CFR 82 Subpart F prior to removal from existing locations. The salvaged refrigerant shall be recycled by the Contractor.

1.8.5 Utility Poles

The Contractor shall verify locations and sizes of wood poles as shown on the electrical utility layout or demolition plans. The Contractor shall coordinate with the agency or POC as directed by the Contracting Officer to verify those used utility poles to be removed in this project. Utility poles shall be salvaged to the maximum extent possible by the Contractor. However, if they are disposed as waste material, the disposal facility receiving those wood poles shall have permit or written authorization by the Texas Natural Resource Conservation Commission (TNRCC) to receive wood poles which are typically contaminated with arsenic and/or creosote.

1.9 LABELING AND RECORD KEEPING

Labeling and record keeping of regulated materials to be salvaged, recycled, incinerated or placed in a landfill shall be in accordance with 40 CFR 262, 40 CFR 263, 40 CFR 264, and all other applicable Federal, State and local regulations. Bill of lading shall be prepared for each item to be shipped to recycling and/or destruction. Information shall include initial date of storage, generator's name and address, destination address and telephone number and the shipping weight.

1.10 SPILLS AND SAFETY

The Contractor shall prepare, maintain and implement a Spill Prevention Plan. The plan shall establish policies and procedures to prevent spills, minimize spill impact on its surroundings and methods to cleanup. The plan shall encompass all activities including at the site, transportation to recycling and/or destruction facilities. It shall address all the safety and health concerns in accordance with 29 CFR 1926 in event of a spill. It shall address clean-up requirements in accordance with 29 CFR 1910.120 paragraphs (b) through (o). Clean-up personnel shall meet the training requirements of 29 CFR 1910.38 (a); 1910.134; and 1910.1200. As a minimum, the following items shall be addressed in the plan: cleanup of spill by the Contractor; verification and approval of final clearance by the Contracting Officer; personal protective equipment (PPE) and decontamination procedures; equipment and material required for cleanup; reporting required to notify state, local, and the Contracting Officer verbally and in writing. The plan shall be kept on-site. Spills of one pound or more of PCBs (typically from 16 or more ballasts) shall be reported within 24 hours to National Response Center (1-800-424-8802), the Contracting Officer and cleaned up immediately. The Contractor shall assume full responsibility for compliance with all Federal, state, and local regulations for workers protection, work practices, site safety, transportation and disposal.

1.11 STORAGE

A temporary storage area shall be provided by the Contractor and approved by the Contracting Officer. Storage time limits are 30 days for ballasts containing PCBss (40 CFR 761) and 1 year for thermostats containing Hg (40 CFR 273). All regulated materials must be removed from the site before final acceptance of this project by the Government.

1.12 TRANSPORTATION

Items containing regulated materials shall be transported by a licensed, hazardous waste hauler. The Spill Prevention Plan shall be enforced by the Contractor to prevent spillage in accordance with 49 CFR 171 and 40 CFR 173. The hauler shall not store regulated materials longer than 10 days in accordance with 40 CFR 263 and 40 CFR 273. Vehicle loading, vehicle placarding, waste tracking, notification and record keeping shall be in accordance with all applicable Federal, State and local regulations.

1.13 RECYCLING/DESTRUCTION FACILITY

The Contractor shall use EPA permitted recycling, destruction facility in accordance with 40 CFR 261, 40 CFR 268 and 40 CFR 270 and/or state permitted or registered facility which holds current environmental pollution liability insurance coverage.

1.14 POTENTIAL BUYERS OF RECYCLED MATERIALS

Contractor shall use www.recycletexasonline.org to find potential buyer to recycle the PCB or wet-type (TCB and/or DEPH) ballasts or transformers.

The receiver of the PCB or wet-type (TCB or DEPH) ballasts or transformers shall have a RCRA Part B permit.

1.15 CLOSURE REPORT

The report shall contain: (1) A signed cover letter certifying completion of work described herein, (2) A signed Statement of Compliance, appended herein, (3) A brief narrative of worker protection and waste removal, segregation, packaging, transportation, and ultimate method of disposal (i.e. recycled/reuse, incinerated, landfill, etc.), (4) A description of accidents, ruptures, leaks, subsequent response procedures and cleanup, and (5) A copy of final disposition document of each item including at least the following: notification, signed manifest of waste, signed certificates or receipts (Bill of Lading) from each recycling or destruction facility.

1.16 STATEMENT OF COMPLIANCE

The Statement of compliance follows this page.

STATEMENT OF COMPLIANCE

I hereby certify that:

(1) the appropriate state manifest form has been completely and properly filled out;

(2) the packing, marking, labeling and placarding of the waste meets all applicable regulations;

(3) the waste transportation, recycling, destruction and disposal meets all applicable Federal, State and local regulations.

Name_____

Title_____

Date_____

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

soil parameters. The Foundation Design Report shall also discuss deformation sensitive areas of ceramic tile, quarry tile, or similar floor materials, and the foundation design requirements for those areas. If the foundation system selected and its associated structural design requirements are approved by the Contracting Officer, and are different than the monolithic ribbed mat foundation system as provided for in this RFP, then a modification to this contract will be required. **(AM#3) Conventionally reinforced foundations are required; post tension construction is not acceptable in this application.**

1.6.1 Ribbed Mat Slab Foundation System Required for Bidding Purposes. The ribbed mat slab foundation system consists of reinforced concrete perimeter and interior ribs (beams) cast monolithically with the reinforced concrete floor slab. Potential differential settlement is spread over a large horizontal area by the ribs through soil-structure interaction. The ribbed mat foundation system is therefore, generally able to bridge low areas due to settlement and redistribute building loads to the subgrade, thereby minimizing any differential settlements that may occur. Design of the ribbed mat foundation should be in accordance with multiple letters *CESWD-ED-TS/G, Subject: Design Criteria for Ribbed Mat Foundations, dated 24 January 1988 and TI 809-28 Design and Construction of Conventionally Reinforced Ribbed Mat Slabs (RRMS)*. The net allowable bearing capacity should not be exceeded when sizing the width of the ribs (beams). This system requires exterior and interior beams along the perimeter and under all load-bearing walls. The interior beams should run parallel and perpendicular to the long axis of the building. A minimum of 25 millimeters of heave is anticipated (after required subgrade preparation) and the ribbed mat foundation should be designed accordingly. Any fill required to bring the subgrade beneath the foundation up to the bottom of the capillary water barrier shall consist of nonexpansive fill. Removal and replacement of unacceptable in situ material will be required.

1.6.2 Ribbed Mat Slab For Expansive Soil Conditions. A conventionally reinforced concrete ribbed mat slab is recommended as the foundation system for the Replacement Family Housing. This system involves minimal excavation depth and is "tied together" by its monolithic construction. The ribbed mat slab requires exterior and interior ribs. The minimum width of the ribs should be sized based on an allowable bearing capacity of 96 kPa (net) but not less than 250 millimeters wide according to the SWD-AEIM. Beam intersections at interior column locations should be widened, as detailed in the SWD-AEIM, such that the contact pressure does not exceed 96 kPa (net). Design of the ribbed mat slab should assume that (1) the structural load is supported solely on the beam and beam intersections, (2) the load transfer occurs over the effective beam width, and (3) the beam and soil remain in contact. The load used to size the beams should consist of full dead load plus that portion of the live load that acts more or less continuously, usually about 50 percent. Interior and exterior beams should be founded not less than 610 millimeters below outside finished grade and at a constant elevation. Minimum beam reinforcing percentage shall be as discussed in the SWD-AEIM, with a minimum of two bars both top and bottom, and number **(AM#3) 10** (metric) stirrups spaced 610 millimeters on-center. The floor slabs shall be **(AM#3) a minimum of 100** millimeters thick and shall be reinforced with number 10 (metric) bars or larger. Floor slab reinforcement should be 0.2 percent of the gross area. Diagonal stiffener beams (ribs) shall be located at each corner of the mat slab, and shall be of the same size and reinforcement as the larger adjacent transverse rib. The maximum transverse and longitudinal rib spacing shall not exceed 4.5 meters on-center, and should run perpendicular and parallel to the long axis of the structure. A rib shall be provided under all significant wall loads and column loads.

The ribbed mat slab foundation should incorporate adequate stiffness such that the deformations do not exceed the structural tolerance of any elements in the foundation or

APPENDIX NO. 17

RAINFALL INTENSITY DURATION FREQUENCY CURVES

RAINFALL INTENSITY DATA
ABILENE, TEXAS

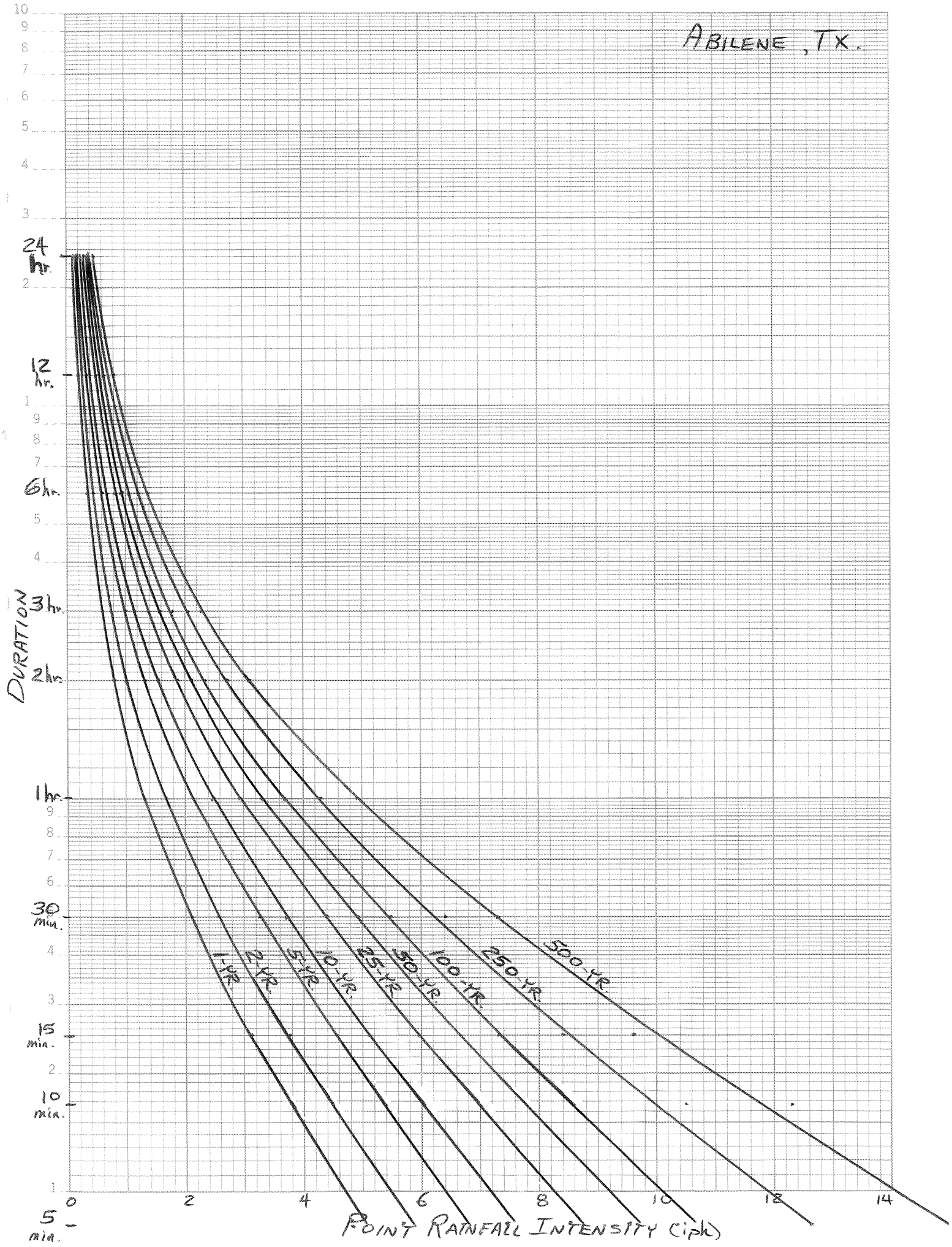
6 Sept. 2002
C.Loftin
817-886-1683
File: "Abilene.___"

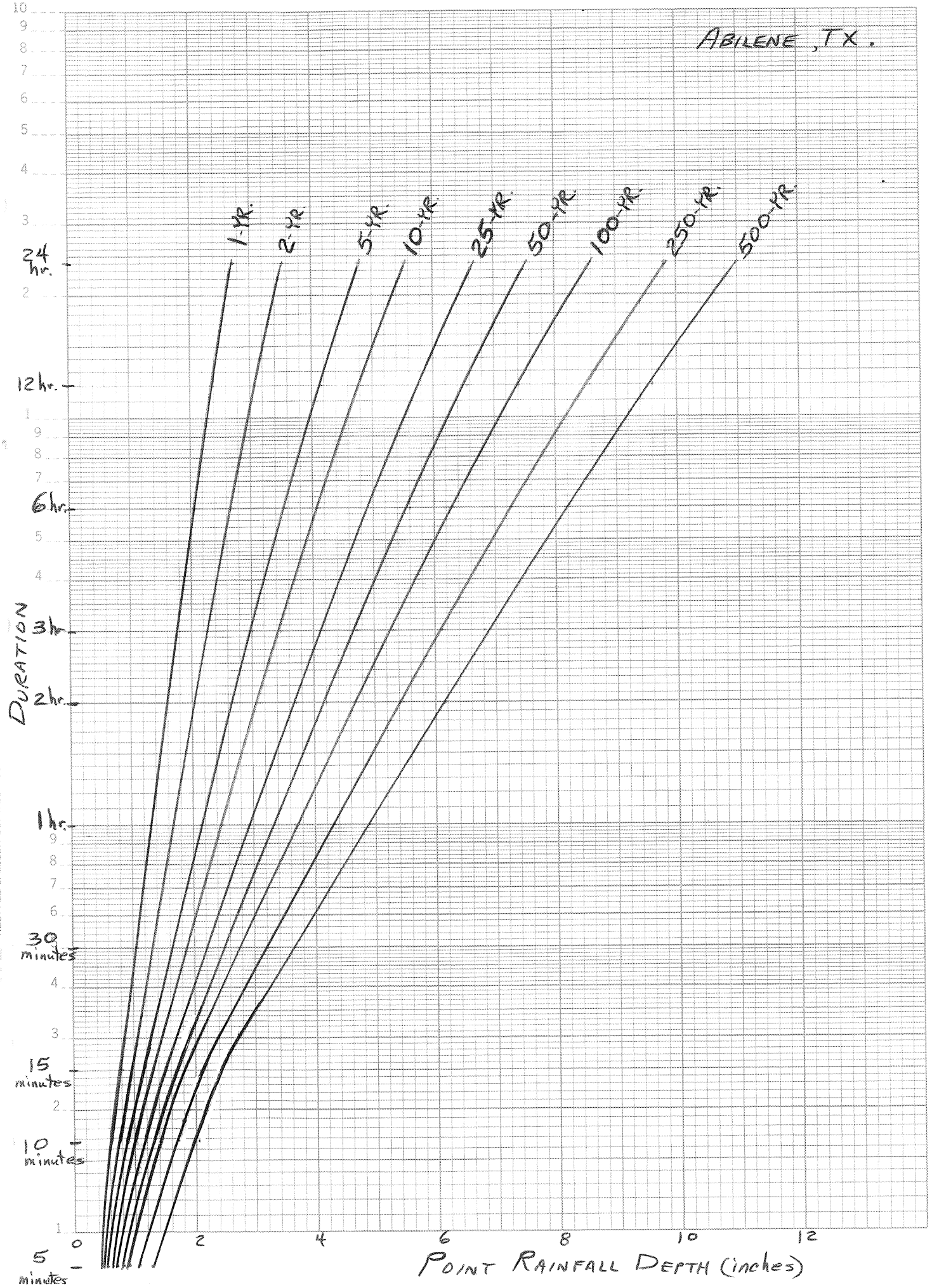
POINT RAINFALL DEPTHS (inches)

Recurrence Interval (years)	Annual Exceedance Probability	DURATION									
		5 min.	10 min.	15 min.	30 min.	1 hour	2 hours	3 hours	6 hours	12 hours	24 hours
1		0.40	0.63	0.78	1.05	1.31	1.58	1.75	2.05	2.35	2.69
2	0.500	0.47	0.75	0.94	1.28	1.64	2.00	2.25	2.65	3.05	3.52
5	0.200	0.56	0.90	1.14	1.62	2.13	2.65	3.00	3.55	4.15	4.76
10	0.100	0.62	1.01	1.28	1.86	2.46	3.10	3.45	4.10	4.80	5.53
25	0.040	0.71	1.17	1.49	2.20	2.94	3.70	4.15	4.95	5.75	6.62
50	0.020	0.79	1.30	1.66	2.46	3.30	4.20	4.70	5.60	6.55	7.50
100	0.010	0.86	1.43	1.82	2.73	3.67	4.67	5.30	6.30	7.40	8.53
250	0.004	1.05	1.75	2.10	3.20	4.30	5.45	6.10	7.25	8.55	9.80
500	0.002	1.25	2.05	2.40	3.65	4.90	6.15	6.80	8.15	9.60	11.00

POINT RAINFALL INTENSITIES (inches per hour)

Recurrence Interval (years)	Annual Exceedance Probability	DURATION									
		5 min.	10 min.	15 min.	30 min.	1 hour	2 hours	3 hours	6 hours	12 hours	24 hours
1		4.80	3.78	3.12	2.10	1.31	0.79	0.58	0.34	0.20	0.11
2	0.500	5.64	4.50	3.76	2.56	1.64	1.00	0.75	0.44	0.25	0.15
5	0.200	6.72	5.40	4.56	3.24	2.13	1.33	1.00	0.59	0.35	0.20
10	0.100	7.44	6.06	5.12	3.72	2.46	1.55	1.15	0.68	0.40	0.23
25	0.040	8.52	7.02	5.96	4.40	2.94	1.85	1.38	0.83	0.48	0.28
50	0.020	9.48	7.80	6.64	4.92	3.30	2.10	1.57	0.93	0.55	0.31
100	0.010	10.32	8.58	7.28	5.46	3.67	2.34	1.77	1.05	0.62	0.36
250	0.004	12.60	10.50	8.40	6.40	4.30	2.73	2.03	1.21	0.71	0.41
500	0.002	15.00	12.30	9.60	7.30	4.90	3.08	2.27	1.36	0.80	0.46




ABILENE, TX.
1-YR.
2-YR.
5-YR.
10-YR.
25-YR.
50-YR.
100-YR.
250-YR.
500-YR.
DURATION
24 hr.
12 hr.
6 hr.
3 hr.
2 hr.
1 hr.
30 minutes
15 minutes
10 minutes
5 minutes
0
2
4
6
8
10
12
POINT RAINFALL DEPTH (inches)
46 5493
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

APPENDIX NO. 18

Existing Sanitary Sewer Plans and Profiles
Family Housing Area: South

(NOTE: See the tiff files on CD for Appendix 18)

APPENDIX NO. 19

Existing Sanitary Sewer Plans and Profiles
Family Housing Area: North

(NOTE: See the dwg files on CD for Appendix 19)